

# 2000 LOWER COOK INLET ANNUAL FINFISH MANAGEMENT REPORT



by

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and  
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## ACKNOWLEDGMENTS

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The finfish operations for the Division of Commercial Fisheries in Lower Cook Inlet employed five permanent full-time employees, nine permanent seasonal employees, and four non-permanent seasonal employees in various area management and research programs during the 2000 season. Appreciation is extended to all personnel for a successful program during 2000.

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***ANNUAL MANAGEMENT REPORT***  
***LOWER COOK INLET***  
***2000***

**COMMERCIAL SALMON FISHERY**

**INTRODUCTION**

The Lower Cook Inlet (LCI) management area is comprised of all waters west of the longitude of Cape Fairfield, north of the latitude of Cape Douglas, and south of the latitude of Anchor Point, and is divided into five fishing districts (Figure 1). The Barren Islands District is the only non-salmon fishing district, with the remaining four districts (Southern, Outer, Eastern, and Kamishak Bay) separated into approximately 40 subdistricts and sections to facilitate management of discrete stocks of salmon and herring.

The 2000 LCI salmon harvest of 1.712 million fish (Table 1, Figure 9) was the fifth highest during the past decade and was slightly greater than the 20-year average of 1.551 million (Appendix Table 5). Unfortunately, the overall harvest represented less than three-fourths of the preseason forecast. Prices paid for salmon this season yielded a LCI exvessel value of approximately \$1.786 million (Table 7), making the value of the 2000 harvest the lowest since 1994 (Appendix Table 2). Seine fishing effort took a slight downturn after increasing for the previous two consecutive years, with 36 permit holders making deliveries this season (Appendix Table 1). The number of active set gillnet permits was 24 (Appendix Table 1), an increase over 1999 but similar to the previous four years.

Once again, LCI commercial salmon harvests in 2000 relied heavily on the success of hatchery and enhanced fish production. Over 80% of the sockeye salmon harvest in numbers of fish was attributed to joint Alaska Department of Fish and Game (ADF&G), Cook Inlet Aquaculture Association (CIAA), and Chugach Regional Resources Commission (CRRC) lake stocking and fertilization projects. These projects were conducted at Leisure, Hazel, and English Bay Lakes in

in the Kamishak Bay District, and Bear and Grouse Lakes sockeye salmon produced by the CRRC enhancement again provided subsistence harvests for the villages of Southern District. Pink salmon production from Tutka was somewhat disappointing, with an overall return of 1.25 percent about 91 % of the preseason projection.

Stocking programs were taken over by private non-profit (PNP) organizations. The portion of the salmon harvest was utilized as hatchery cost offset by the various stocking and enhancement projects. Two-thirds of the total salmon harvest in numbers of fish was from the stocking programs and Tutka Hatchery operations, representing 85 percent of the vessel value of the LCI salmon fishery (Table 7). Although the contribution, natural returns bound for LCI drainages did not decline in 2000, primarily from Port Dick and East Nuka Bay in the Douglas River Subdistricts in the Kamishak Bay District.

Due to the amount and distribution of seine effort, and ensuing weather, the 2000 season was a poor one. The first was the policy adopted in 1994 by major processors prior to that time processors routinely stationed a tender (or processor) to assist in the collection of salmon harvests, even when run strengths and weather were poor. In recent years seiners were forced to devise their own means of transport to a processing plant in Homer or elsewhere. Due to the cost of contracting out for tendering services, a significant portion of processors were unable to fish in remote areas, while some retained the ability to fish because of onboard chilling equipment. During 2000, processors were able to provide on a more regular basis than during the previous years the tendering services in these districts.

The second influential element affecting harvest and effort revolved around worldwide market situations. Prices for both pink salmon (the most numerous species in LCI) and sockeye salmon were lower than recent seasons. This pricing structure often dictated the fishing strategy of individual fishermen, even to the point of total non-participation, which might account for the decrease in seine effort.

### PRESEASON FORECAST

The projected 2000 LCI all-species salmon harvest of 2.4 million fish was about 55% greater than the 20-year average. This optimism resulted from relatively strong pink salmon parent year escapements in 1998 and hatchery releases during 1999, as well as the expected success of various sockeye lake stocking programs. Formal total run forecasts for natural salmon returns other than pink salmon were not prepared because escapement and age-weight-length data are limited for those species. However, catch projections were calculated from relative estimates of parental run size, average age composition data, and recent relative productivity trends. Preseason harvest projections and actual catches for all species in 2000 are listed in the following table:

SPECIES	PROJECTED HARVEST	ACTUAL HARVEST	1980-1999 AVERAGE
Chinook	1,300	1,188	1,331
Sockeye	487,000	240,932	238,807
Coho	14,700	8,909	14,656
Pink	1,890,000	1,387,307	1,216,296
Chum	10,200	73,254	79,865
<b>TOTAL</b>	<b>2,403,200</b>	<b>1,711,590</b>	<b>1,550,955</b>

Relatively strong sockeye returns were anticipated in all areas. Enhanced runs to Leisure and Hazel Lakes in the Southern District, Kirschner Lake in the Kamishak Bay District, and Bear and Grouse Lakes in the Eastern District, were expected to comprise the bulk of the sockeye

use Lake return was specifically designated for hatchery  
the Trail Lake Basic Management Plan (BMP). The  
s system in the Southern District, increasingly important  
high juvenile mortalities. Although Chenik Lake in the  
regular fry stocking and intermittent fertilization during  
eye returns in 2000 were again predicted to be very poor  
otic of Infectious Hematopoietic Necrosis Virus (IHNV)  
e Chenik run was to be protected for escapement.

re once again expected to be the mainstay of the pink  
est totaling over 1.2 million fish. The projection was  
from Tutka Hatchery in 1999 (Appendix Table 31), and  
ar runs were expected to produce an overall adult return

scapements to major systems contributed to a harvest  
d pinks throughout the entire LCI management area this  
en year since LCI has traditionally been considered odd-  
d Rocky Bay in the Outer District, and Bruin Bay in the  
to provide the largest potential for harvestable surpluses,  
icts was uncertain due to the unknown levels of tender

ared unlikely again in 2000 since major LCI systems  
ing the 1995 and 1996 parent years. Although a few  
ishak Bay, seemed to be responding positively to recent  
ures, a trend of weak returns over the past decade  
ld be weak as well.

## 2000 SUMMARY BY SPECIES

### Chinook Salmon

The harvest of chinook salmon, not normally a commercially important species in LCI, was approximately 10% less than the 20-year average at 1,188 fish (Table 2, Appendix Table 12). Virtually all of the catch came from the Southern District and can be primarily attributed to enhanced production at Halibut Cove Lagoon and Seldovia Bay. Set gillnetters accounted for about 86% of the LCI chinook catch, with purse seiners taking the remaining 14%.

### Sockeye Salmon

The 2000 LCI sockeye salmon harvest of 241,000 fish (Figure 11, Table 3) fell short of the preseason forecast by over 50% and was the second lowest catch for this species in the last five years (Appendix Table 13). Sockeyes accounted for only about 14% of the LCI salmon harvest in total numbers of fish, yet provided nearly two-thirds of the exvessel value of the entire salmon fishery this season (Table 7). The 2000 LCI commercial sockeye harvest was characterized by considerably weaker than anticipated contributions from Southern District enhancement programs at Leisure and Hazel Lakes, while the return to Grouse Lake in the Eastern District was also significantly below the preseason forecast. As was the case during past seasons, non-local stocks were thought to have intermixed with local stocks while migrating through the Southern District terminal harvest areas, providing additional sockeyes for harvest there. Elsewhere in LCI, one natural return of sockeye salmon, at Delight Lake in the Outer District, also contributed to commercial seine catches.

Returns to enhancement sites, which typically have provided the bulk of the LCI sockeye catch, were variable in 2000. In the Southern District, harvests of enhanced runs of sockeye salmon returning to Leisure and Hazel Lakes were predicted to total over 150,000 fish combined. However, the estimated combined total of just 97,000 fish (Figure 12, Appendix Table 15) produced as a result of these two enhancement projects represented less than two-

This year's harvest figure represents the third lowest return to Hazel Lake in 1991 (prior to that year, only two harvests).

Sockeye run to English Bay Lakes failed to achieve an average for the first time since 1993. Preseason expectations for high juvenile mortalities, and the slow catch rates weeks after the commercial set gillnet fishery opening as a result, the entire Port Graham Subdistrict (including all commercial fishing for the remainder of the season to occur) within the subdistrict remained open, however, and the lakes likely contributed to subsistence catches in the area. The continued viability of the sockeye return to this area is of an ongoing "rehabilitation project originally initiated and is presently being conducted by Chugach Regional Resources in partnership with the village of Nanwalek.

Good returns to Kirschner Lake produced a harvest of 35,000, slightly exceeding the preseason harvest forecast of 30,000. The return site at Ursus Lake was weak as predicted since the lake has historically failed to meet the theorized potential. No return in the Kamishak Bay District since that return was affected by effects of an outbreak of IHN, a naturally occurring viral outbreak caused increased mortality to young salmon, and the returns.

In the Eastern District, the catch of an estimated 21,000 was well below the forecast. The return to nearby Grouse Lake, with a catch of 43,000, was significantly short of the forecast at an estimated 43,000.

The LCI management area has only four lake systems with significant naturally occurring sockeye salmon runs, and three of the four achieved their escapement goals in 2000. In the Outer District, the escapement goal of 10,000 sockeyes at Delight Lake was achieved, with a final total of 12,300 fish (Appendix Table 23), while the run to nearby Desire Lake, with an identical goal, was extremely weak with an escapement estimated at only 4,000 sockeyes. The strong return to Delight Lake was reflected in the seine harvest in East Nuka Bay, totaling almost 22,000 sockeyes (Table 3). Returns to Delusion (Ecstasy) Lakes, a recently formed glacial lake system in East Nuka Bay which supported no documented salmon run prior to the mid-1980's, had a peak aerial escapement estimate of 2,100 sockeye salmon in 2000. Waters of Aialik Bay, including Aialik Lagoon, in the Eastern District were opened to fishing in early July, but little effort occurred because the run was not overly strong, resulting in a harvest of less than 100 sockeyes for the season (Table 3). Still, the final estimate of escapement at Aialik Lake ended up within, but near the upper end, of the escapement goal range (Table 3, Appendix Table 23). At Mikfik Lake in the Kamishak Bay District, a relatively strong return resulted in an escapement estimated at nearly 11,000 sockeyes (5-7,000 goal range), but no seine effort or harvest occurred despite continuous fishing allowed in June.

### **Coho Salmon**

The 2000 commercial harvest of 8,900 coho salmon (Table 4) in 2000 was the third lowest during the past decade, representing only about two-thirds of the recent 10-year average (Appendix Table 17). As is typical, the majority of the harvest came from hatchery cost recovery operations at Bear Lake and entries into the Seward Silver Salmon Derby, both in the Eastern District. Coho run assessment in LCI is limited, with commercial, sport, and personal use harvests providing the best indicators of run strength. Based on these indicators, returns during 2000 were considered good. Also as is common, the combination of low prices and the lack of remote tender service seemed to discourage the seine fleet from targeting cohos late in the season, especially in the Kamishak Bay District, thus the commercial harvest may not have been truly indicative of run strengths. Three aerial surveys were flown specifically for coho salmon assessment in August and September, at Clearwater Slough in the Northshore

The resulting peak index count of over 600 cohos  
tem, but the lack of fish observed during the last survey  
run timing for this stock may have been slightly earlier

dominant species in numbers of commercially harvested  
for an even year, with an overall harvest of 1.39 million  
ber represents the fifth highest commercial catch during  
the recent 10- and 20-year averages (Appendix Table 18).  
the Southern District (Table 5, Appendix Table 18) as a  
duction, but nearly 98% of this total, or about 1.044  
Hatchery cost recovery (Tables 1 and 5), with an  
chery brood stock purposes (Table 9). The estimated  
escapement into Tutka Creek, brood stock, commercially  
as 1.25 million pinks (Table 9), falling short of the  
million fish. The 2000 survival rate of approximately  
for this facility.

test contribution of natural pinks to LCI catches with a  
Table 5, Appendix Table 18), the highest catch in the  
harvest was taken during directed efforts in Port Dick.  
ich in some years has produced good late season catches  
Sound origin), experienced a harvest of only 4,100 fish  
dict, very little pink harvest occurred in 2000 despite a  
me in, Bruin Bay. Pink salmon escapements into major  
ered highly variable, with some systems experiencing  
s were weak as is typically seen during even years



## **Chum Salmon**

The 2000 commercial chum salmon harvest of over 73,000 fish (Table 6) represented the highest total for this species since 1988 and was about seven times the recent 10-year average (Figure 14, Appendix Table 21). These numbers were not anticipated based on the recent trend of weak returns, but strong returns to southern Kamishak Bay systems proved a boon to the seine fleet, with the catches from these marine waters providing over 85% of the area-wide total. Additionally, the majority of monitored systems throughout the management area achieved their minimum escapement goals. One exception, McNeil River in the Kamishak Bay District, failed to attain the lower end of its escapement goal range of 20,000 to 40,000 fish for the second consecutive year (Appendix Table 25) despite a subdistrict closure and complete lack of fishing effort. Other systems that failed to meet their chum goals in 2000 included Rocky River and Port Dick (head end) Creek in the Outer District.

## **2000 EXVESSEL VALUE**

The estimated exvessel value of the 2000 salmon harvest in LCI, not including any postseason adjustments in price paid to fishermen, was approximately \$1.79 million (Table 7, Appendix Table 2), making it the lowest since 1994. Purse seine gear in the common property fishery, which normally accounts for the majority of the catch, comprised nearly \$1.00 million or about 55% of the overall total (Table 7), while set gillnets accounted for \$211,000 or 12%. An estimated \$577,000, or about one-third of the entire exvessel value of the LCI salmon fishery, was utilized for hatchery cost recovery purposes. Average prices paid to fishermen in 2000, not including any postseason adjustments, were as follows: chinook - \$1.86/pound; sockeye - \$0.87/pound; coho - \$0.60/pound; pink - \$0.12/pound; and chum - \$0.28/pound (Appendix Table 3).

**ASON MANAGEMENT SUMMARIES**

or fishing in any part of Cook Inlet (Upper or Lower),  
CI, all located along the south shore of Kachemak Bay  
nets may be used (Figure 2). The limited area provides  
accommodate approximately 25 set net permits.

harvest totaled 55,200 fish, which was similar to the  
le 7). Approximately 48% of the catch was comprised  
. For comparison, these figures are nearly identical to  
cal species composition in the commercial set gillnet  
50% sockeyes, 38% pinks, 5% cohos, 5% chums, and  
ion, at 1,000 fish, were the third lowest since 1991 but  
nhancement efforts, directed at recreational fisheries in  
n, are primarily responsible for the commercial gillnet

tion on the first Monday in June during 2000, the  
Port Graham Subdistrict, including the English Bay  
of fishing in order to protect sockeyes returning to  
ile mortalities encountered in the enhancement program  
ojected to total up to a modest 28,000 fish. With an  
es established for this system, limited commercial  
ately, the forecast was overly optimistic and the return  
by catches in the commercial fishery. However, the  
Port Graham and English Bay Sections of Port Graham

Subdistrict was allowed to proceed on the normal fishing schedule to help fulfill salmon subsistence requirements in the villages of Port Graham and Nanwalek. Despite the commercial fishery restrictions, escapement into English Bay Lakes failed to meet the 15,000-fish goal for the first time since 1996, breaking the recent trend of annually attaining the system's spawning requirements. Optimism for potentially greater returns in future years at English Bay Lakes remains high.

After the sockeye return was over, waters of Port Graham Subdistrict remained closed to commercial set gillnet fishing to protect the natural stock of pink salmon returning to Port Graham River, as well as enhanced fish returning to Port Graham Hatchery. The preseason forecast for the natural return was only 20,000, the low end of the desired range established for Port Graham River. At the hatchery, the projected return ranged up to 150,000 pinks, all of which would be required for brood stock in order to meet the hatchery's egg take goal. As a result, keeping waters of Port Graham Subdistrict closed to set gillnet fishing was warranted to provide maximum protection to these stocks. Despite the closure, weak natural and hatchery returns resulted in a failure to achieve both the escapement goal for Port Graham River (Appendix Table 24) and the egg take goal for Port Graham Hatchery.

LCI set gillnet fishing effort in 2000 increased over 1999, with a total of 24 set gillnet permits actively fished. This was greater than the recent 10-year average and similar to the stable trend experienced between 1995 and 1998 (Appendix Table 1).

## **Seine Fishery**

### Sockeye Salmon

The overall catch of sockeye salmon by all gear types, at 123,600 fish, was the second lowest for the Southern District since 1994 (Appendix Table 13) and was nearly 30% less than the recent 10-year average. Purse seiners in the common property fishery accounted for almost two-thirds of the sockeye salmon landed in the district in 2000 (Table 1).

Poot Bay and Halibut Cove Subdistricts, and the outer were opened to seining five days per week beginning to Leisure and Hazel Lakes. Within these subdistricts, and Hazel Lake Special Harvest Areas (SHA's; Figure 3) of CIAA at this time, seven days per week, for the recovery. They were to be kept closed to the common preseason revenue goal established for each SHA was

ns for returns to the Leisure and Hazel Lakes stocking sh. The actual commercial harvest of fish returning to pointing 97,000 fish (Figure 12, Appendix Table 15), LCI sockeye salmon harvest (Table 3). Because of the objects, the overlapping area of harvest, and the lack of separate returns to each system can be established. these two projects not only contributed to seine catches to those in Halibut Cove and Tutka Bay Subdistricts. It t and sport fishermen harvested another 5,550 sockeyes on recent years' average catches. The 2000 total return 103,000 sockeyes (Appendix Table 15). Although the st and the actual return cannot be fully explained, lower revival was likely responsible.

y Annual Management Plan (AMP) prior to the season, erational expenses incurred in LCI sockeye salmon lake This figure was to be split amongst locations as follows: Hazel Lake SHA's, both in the Southern District, and Lakes SHA's in the Kamishak Bay District. No cost in 2000 since stocking has been discontinued and weak harvests inside the China Poot and Hazel Lake SHA's

(Figure 3) were to occur at CIAA's discretion early in the runs since harvests could take place without interference or competition from the fleet at large. A minimum harvest of 19,400 sockeyes from the China Poot and Hazel Lake SHA's was necessary to achieve the combined goal of \$62,200 for these two areas, assuming an average price of \$0.80 per pound and an average weight of 4.0 pounds per fish. As previously described, these SHA's were to remain closed to common property seining until the combined goal established for the two areas was achieved.

As in past years, CIAA once again contracted the Cook Inlet Seiners Association (CISA) to undertake sockeye cost recovery in LCI for the 2000 season. CISA enlisted volunteers from within the fleet, and the first cost recovery harvest in the China Poot Subdistrict occurred on June 25 in the China Poot SHA, netting about 150 fish, which was considered reasonably good for the early date. However, volunteer vessels, as well as those participating in the common property fishery outside the SHA's, reported that numbers of fish present in area waters was low by historical standards and that very little "buildup" of fish was occurring within the SHA's. Although a firm contract price for sockeyes had been established at \$0.75 per pound by this time, this lower than anticipated price was offset by an initially higher than expected average weight of over five pounds per fish. As a result, the number of fish necessary to achieve the revenue goal was revised downward to a new combined total of approximately 15,100 fish.

No cost recovery effort occurred over the next week, but fishing resumed on July 3 in the China Poot SHA with a catch of about 600 fish. Fishermen continued to report fewer than expected numbers of sockeyes, suggesting a weak return. Six days later on July 9, about 800 sockeyes were taken in the China Poot SHA, still considered poor based on the date as catch rates should have increased significantly by then. The first cost recovery effort of the season in the Hazel Lake SHA occurred on July 12, with a harvest of 2,500 fish. Sockeyes were finally building within the respective SHA's, and steady cost recovery efforts continued over the next week. A final effort on July 20 brought the cumulative harvest to 17,700 sockeyes totaling 83,500 pounds. At a price of \$0.75 per pound, the value of the harvest slightly exceeded the

: China Poot and Hazel Lakes SHA's were closed to cost  
the China Poot and Hazel Lake Sections of China Poot  
property seining seven days per week beginning Friday,  
ina Poot Section near the mouth of China Poot Creek  
aing (on weekends only) in deference to the heavy  
y.

ina Poot Subdistrict, outside of the SHA's, began slowly  
ned optimistic that run strength would begin to build in  
aism never manifested itself as catches increased only  
ek of July. It quickly became apparent that the returns  
cations. Common property harvests in China Poot  
July 10-14, with a combined total of nearly 26,500  
ls in the China Poot and Hazel Lake Sections. Nearly  
that time was taken in the Hazel Lake Section. Another  
th sections on July 21, the first day of common property  
chery revenue goal was achieved, but catches dropped  
onth. The last landing was made on July 31, with the  
wo sections totaling 60,200 sockeyes (Table 3). Nearly  
in the Neptune Bay Section. Seine effort for sockeyes  
e Subdistrict added an additional 17,300 sockeyes to the  
a Bay Subdistrict seine harvests totaled only 600 fish.  
conducted this season, it must be pointed out that some  
Tutka Bay Subdistrict may have been returning to the  
vel smolt releases in prior years.

Bay Hatchery contributed to an overall Southern District  
Appendix Table 18), falling short of the recent 10-year

average and representing the second lowest catch since 1994. This was somewhat disappointing as the preseason hatchery forecast called for a harvest of 1.22 million pinks, most of which would be necessary for cost recovery and brood stock purposes.

Waters of Tutka Bay Subdistrict outside of Tutka Bay proper were open to commercial seining five days per week beginning June 19, as has been the case in recent years. The open waters consisted of those waters offshore of a line running from the "rock quarry" on the north shore of Tutka Bay to the Tutka Bay Lodge on the south shore (Figure 4). Waters within the Tutka Bay SHA (Figure 4) were open to hatchery brood stock and cost recovery harvest by authorized agents of CIAA on a continuous basis, as established in the Tutka Hatchery Annual Management Plan, beginning June 26. The plan called for hatchery incubators to be filled to maximum capacity if possible, and excess fish beyond brood stock and natural escapement requirements were to be harvested for cost recovery to help offset operational expenses, estimated at \$432,700 for FY00. A minimum of 160,000 fish (120,000 females) was desired for hatchery brood stock in order to achieve the goal of 125 million eggs, and an additional 6,000-10,000 pinks were needed to meet the natural spawning escapement goal for Tutka Creek.

At a projected average weight of 2.8 pounds and a preseason projected price of \$0.15 per pound for cost recovery fish, about three-fourths of the overall forecasted hatchery return would be needed to meet the revenue goal. If the return came in as predicted, over 180,000 fish would potentially be available for common property harvest. However, the forecast range suggested that if the return was weak virtually all hatchery pinks would be necessary to reach sales revenue, brood stock, and escapement goals. Because of this, the Tutka Hatchery AMP contained a clause stating that additional common property fishery restrictions within Tutka Bay Subdistrict would be imposed by July 10 if the aforementioned goals could not be projected.

The contracted cost recovery vessel and crew was available and ready to begin harvesting in early July, with the first harvest occurring on July 7 inside Tutka Lagoon. A second catcher

agoon as was the case in some previous years, was kept  
length to justify additional effort. Catches over the next  
as either late or weak, and the hatchery goals could not  
a result, the common property seine closure line was  
as specified in the Tutka Hatchery AMP, in an effort to  
reach the hatchery site.

ed on a daily basis, except for 5 days, until August 1.  
occurred on July 15, with a total of over 113,000 pinks  
50,000 pinks for each day fished. Only a very small  
s than 10% of the cost recovery harvest, occurred in  
e single primary vessel contracted by the hatchery was  
pace that prevented any significant buildups during the  
t required during any part of the hatchery harvesting

aged a slight 2.3 pounds per fish, considerably smaller  
half-pound less than the expected average weight, while  
as only \$0.10 per pound. These factors necessitated an  
ed to achieve the revenue goal. By late July, catches and  
tly and cost recovery efforts were becoming financially  
ipated inseason price, CIAA officials indicated that cost  
ase and that the revenue goal for FY00 would not be  
never opened to common property seining at any time  
t recovery harvest occurred on August 1, resulting in a  
ch of 1.044 million pinks for the season (Table 9). An  
d for brood stock. Shortly after the end of the salmon  
e price for Tutka cost recovery pinks had risen to about  
ll value of the harvest to about \$336,000 (Table 7) but  
\$432,700.



Virtually no commercial seine effort directed specifically at pinks destined for Tutka Hatchery occurred during 2000. The fleet was aware of the relatively poor forecast and the hatchery's need to take the majority of the return for brood stock and sales revenue purposes. Additionally, the fishing restriction imposed on July 10, which moved the closed waters line at the mouth of Tutka Bay further offshore (Figure 4), diminished the fleet's chances of successfully targeting the return. As a result, landings of pinks in Tutka Subdistrict (outside of the SHA) totaled only 8,600 fish (Table 5), with the seine fleet taking less than 1% of that amount.

The estimated pink salmon escapement of 19,000 fish into Tutka Creek (Table 5, Appendix Table 24) exceeded the desired range of 6-10,000 fish. As in recent years, this escapement was thought to contain a disproportionately high percentage of males discarded during hatchery sorting operations. The total return of pinks to Tutka Hatchery, including commercial, cost recovery, brood stock, and sport harvest, as well as escapement, was estimated at 1.25 million fish (Table 9), representing about 91% of the preseason forecast.

At Port Graham in the Southern District, a spring 1999 fry release of 4.62 million pinks from Port Graham Hatchery was expected to produce an adult return approaching 150,000 fish this season. The Port Graham Hatchery Corporation (PGHC) anticipated that all returning fish would be required for brood stock in order to meet the egg take goal. Brood stock harvest could only begin once the Department ground survey team verified the established escapement threshold of 6,000 pinks into nearby Port Graham River, as outlined in the Port Graham Hatchery Annual Management Plan (AMP). In addition, the hatchery egg removal schedule for Port Graham River, also summarized in the AMP, was identical to previous years. The forecast for the wild stock return to nearby Port Graham River was estimated at 21,000 pinks. With a desired escapement range of 20,000 to 40,000 fish at Port Graham River, and a recent trend of weak returns, a directed common property harvest was doubtful, and an in-river brood stock harvest was improbable since hatchery needs would likely be achieved by virtue of the hatchery return alone.

m River that confirmed the presence of pink salmon was negligible. Escapement built slowly, verifying that the threshold of 6,000 pinks necessary to begin brood stock t 10, at which time the Port Graham SHA (Figure 7) was of PGHC. The hatchery return to Port Graham was much al of 38,500 pinks taken for brood stock purposes, while River, estimated at 15,600 pinks, fell short of the desired ninth consecutive year. The commercial fishery in Port ed earlier in the season to protect sockeyes returning to d due to the weakness of both the wild and hatchery pink k harvest occurred in the subdistrict.

other systems in the Southern District were variable as nt counts, and no directed seine openings were allowed. the upper end (35,000) of it's pink escapement range by arabara Creeks both failed to meet their respective goals

s were poor for a twelfth consecutive year, but at least nent over recent years. The chum harvest of 5,300 fish ar of increasing catches and represented the highest total et gillnets accounted for nearly 98% of the total, split . Bay (34%), and Barabara Creek (23%) Subdistricts i District chum systems were generally fair to good, and ge was achieved at Port Graham River for the fourth 25). Although no formal goal is established, Seldovia ong chum return, with a final escapement totaling 7,100

Although minor in total numbers of fish, the majority of the Southern District chinook harvest usually consists of incidental catches of adult fish returning to three separate enhancement projects. The 2000 Southern District harvest of 1,184 chinooks was the third lowest in the last 10 years (Appendix Table 12). Only about 14% of the chinook catch was taken by seiners, with set gillnetters taking the remainder. The district-wide coho salmon harvest of 768 fish was less than one-fifth of the recent 10-year average (Appendix Table 17), with seiners accounting for only about 20% of the total and set gillnetters taking the rest (Table 1).

### **Kamishak Bay District**

#### **Sockeye Salmon**

The entire Kamishak Bay District, with the exception of Chenik Subdistrict, opened to salmon seining by regulation on June 1. In a departure from the established norm from previous years, waters of Paint River Subdistrict were allowed to open along with the rest of the Kamishak Bay District because the stocking program at Paint River Lakes had been discontinued, and few sockeyes were expected back to that location this season. The weekly fishing schedule for the district was set at seven days per week, as has been the case for the previous two seasons. This schedule was originally implemented because the complexion of the fishery has evolved since 1994, when fish processors ended the routine practice of stationing a tender or tenders in this remote district at the start of each season. As a result, effort and resultant catches declined as fishermen were forced to devise their own transport of all salmon harvested. Recognizing this shift in effort levels, as well as the harsh weather that typically limits effective fishing activity, the staff determined that opening waters of Kamishak Bay District to commercial seine fishing seven days per week would allow opportunity to harvest salmon without unduly jeopardizing spawning escapement requirements.

The earliest natural sockeye salmon return to the management area, at Mikfik Creek in the McNeil River Subdistrict, showed promise when 10 fish were spotted during the first aerial survey on May 30. Between June 5 and June 9, the approximate time period of the traditional

red fresh water, with an escapement estimate of nearly  
e, exceeding the escapement goal range of 5-7,000 fish.  
ne and numbers surplus to spawning escapement  
is stock occurred this season and therefore no harvest  
ble over the next two weeks, suggesting that the run had  
he peak aerial survey, conducted on June 21, totaled  
was used as the final escapement index (Table 3,  
season was considered normal for this system.

s would next normally turn their attention to the Chenik  
he final days of June. Once again, however, no fishing  
r due to the lingering effects of the IHNV outbreak in  
decrease in adult returns. Despite the forecasted weak  
s of Chenik Subdistrict fostered hope that the run would  
goal of 10,000 sockeyes. Unfortunately, a seventh  
rred, and even with no fishing effort during the entire  
k Lake was estimated by aerial surveys at only 4,800  
23). Still, this number was the highest estimate for  
sockeye harvest occurred in the Douglas River/Silver  
to be waiting for more lucrative fishing elsewhere in the

ay District was to nearby Kirschner and Bruin Lakes in  
es have been traditional sites of sockeye salmon lake  
where a steep falls at tideline precludes escapement into  
cted to return, but because of the discontinuation of  
were expected back to that site. As outlined in the Trail  
Plan (AMP) prior to the season, the revenue goal  
es incurred in all LCI sockeye salmon lake stocking  
ant was to be split between the Southern District SHA's

(Leisure/Hazel) at 60% of the total and the Kamishak SHA's (Kirschner/Bruin) at 40%. No cost recovery was planned at Chenik Lake in 2000 since weak returns were once again expected. Projected harvests of 13,000 sockeyes from the Kirschner and Bruin Lakes SHA's (Figure 6) were necessary to achieve the revenue goal of \$41,400, assuming an average price of \$0.80 per pound and an average weight of 4.0 pounds per fish.

Preseason management strategy for the Bruin Bay Subdistrict, as outlined in the Trail Lakes Hatchery AMP, was to open the Kirschner and Bruin SHA's to hatchery cost recovery fishing on a continuous basis beginning June 19 while keeping both closed to common property seining. The intent was to allow opportunity for CIAA to achieve the sales harvest goal quickly at the beginning of the run. As soon as the goal was met, the two SHA's were to be closed to cost recovery harvest and opened to commercial seining so the fleet could work the areas uninhibited for the remainder of the season.

CIAA had made arrangements prior to the season for a CISA vessel to conduct cost recovery. The first effort occurred in the Kirschner Lake SHA on July 18, resulting in an estimated harvest of 6,800 fish. Unfortunately, the inseason price for Kirschner cost recovery sockeyes plummeted to \$0.50 per pound due to freshwater marking, which in turn reduced the total value of the first harvest to only about one-third of the revenue goal. Three more harvests occurred over the next five days, finally resulting in attainment of the revenue goal. In response, waters of both SHA's were closed to hatchery cost recovery fishing effective July 23.

Because sockeye salmon returning to the Kirschner Lake stocking site are prevented from entering the lake by a steep waterfall at tideline, no escapement is possible and a total harvest is desired. In an effort to provide maximum opportunity to achieve a 100% harvest, all waters of Bruin Bay Subdistrict would normally be opened to continuous commercial salmon seining once the hatchery revenue goal was achieved. However, run strength of the pink salmon return to nearby Bruin Bay River had not yet been determined because the run was in its early stages. As a precaution, to provide limited protection to natural stocks of Bruin Bay pinks while still allowing opportunity to harvest remaining Kirschner Lake sockeyes, waters of Bruin Bay Subdistrict were

schedule of two 48-hour weekly fishing periods beginning  
and closures were intended to allow limited pink salmon  
assessment of that return continued.

at the Kirschner Lake sockeye return in the common  
sockeyes were landed for the season (Table 3), with the last  
return to Kirschner Lake was estimated at about 31,600  
season prediction for the system. Only 40 sockeyes were  
in Lake Creek, also prevented by a barrier falls from

for the Kamishak Bay District were fairly optimistic, with  
recasted for both Bruin Bay and Rocky/Ursus Cove  
Subdistrict opened to seining on June 1 seven days per  
er and Bruin SHA's (Figure 6) were closed to common  
ugh July 23 to allow for hatchery sockeye cost recovery  
rs of Bruin Bay Subdistrict on July 24 but was restricted  
s per week because of questionable pink run strength into  
and Ursus Cove Subdistricts, which had also originally  
closed on July 24 so that pink returns to systems there, as  
Kamishak Bay, could be assessed. Pink escapement into  
time, with no fish observed during an aerial survey on July  
of Bruin Bay Subdistrict were quickly closed to fishing on  
estimated 3,000 pinks while targeting a relatively strong  
Bay River. The staff reasoned that the level of seine effort  
uld jeopardize what appeared to be already weak pink

Escapement into Bruin Bay River picked up significantly over the next 10 days, with a survey on August 7 producing an estimate of over 50,000 pinks in fresh water. Because that figure exceeded the upper end of the escapement goal range, all waters of Bruin Bay Subdistrict were open to commercial seining seven days per week beginning August 8. Unfortunately, seiners had already left the district by this time to focus on returns elsewhere in the management area, and no further harvest of pink salmon occurred in the Kamishak Bay District. The total harvest for the season amounted to about 6,200 fish (Table 5, Appendix Table 18), primarily taken in the Bruin Bay Subdistrict. The pink return to Bruin Bay River was indeed strong, with a final escapement estimate of nearly 177,000 fish (Table 5, Appendix Table 24). At nearby Sunday Creek in Rocky Cove, the pink return to Sunday Creek totaled about 40,000 fish, exceeding the goal of 10,000 set for that system. In contrast, the pink return to Brown's Peak Creek in Ursus Cove was weak, with an estimated escapement of only 9,700 fish, falling just short of that system's 10,000 fish escapement goal. Elsewhere in the district, Big and Little Kamishak Rivers experienced escapements estimated at 22,000 and 11,000 pinks, respectively (Appendix Table 24).

### **Chum Salmon**

For the first time in more than 10 seasons, significant catches of chum salmon occurred in the LCI management area. Over 90% of the total LCI catch of 73,000 chums was taken by seiners in Kamishak Bay District (Table 6, Appendix Table 21). Chum returns throughout the management area were generally stronger than in any recent year.

Aerial surveys to monitor chum returns in Kamishak Bay began in mid/late June, with the first chums of the season noted in McNeil River on June 21. Because chum runs to McNeil River have not been strong over the past decade, waters of McNeil River Subdistrict were closed to commercial fishing as a precaution beginning June 30, even though no seiners were present in area waters. Escapement into McNeil River progressed slowly, as evidenced by consistent daily aerial survey counts ranging from 3-5,000 fish throughout the month of July. The return was decidedly weak, with a peak single survey estimate of 7,600 chums made on August 7.

Analysis of aerial survey data using the standard area under the curve (AUC) method yielded a final estimated escapement index at McNeil River of 18,600 fish, falling short of the low end (20,000) of the escapement range for the ninth time in the last 11 years (Appendix Table 25) despite the absence of fishing mortality through the entire 2000 return.

Chum returns to nearly all other Kamishak Bay systems were strong. In the southern portion of the district, which had been opened to fishing seven days per week at the beginning of the season, seiners began targeting chums returning to the Kamishak and Douglas River Subdistricts on July 21. Although the runs appeared strong, as evidenced by aerial survey estimates of 5,000 and 3,000 chums, respectively, into Big and Little Kamishak Rivers on July 23, the unexpectedly heavy effort levels posed the threat of overharvest if the runs proved weaker than originally thought. In response, the seine fishery in waters of the Kamishak River and Douglas River Subdistricts was restricted to two 48-hour periods per week beginning July 24. This strategy appeared successful at allowing opportunity for seiners to harvest surplus fish while still allowing adequate chum escapement throughout the duration of the return. Over the last 10 days of July, seiners harvested nearly 64,000 chums in the Kamishak River and Douglas River Subdistricts (Table 6). Escapements were also positive, with final estimates of 45,000 chums into Big Kamishak River and 27,000 into Little Kamishak River (Table 6, Appendix Table 25), achieving the respective goals established for each system.

In central and northern Kamishak Bay, chum returns also appeared more robust than in recent years. Because the run timing for the more northerly systems is later than that in southern and central Kamishak areas, the staff was concerned that the effort present in the southern end of the district could quickly shift locations and significantly impact escapements into northern systems before the staff could effectively react. As a result, the Rocky, Ursus, Cottonwood, and Iniskin Subdistricts were closed to seining beginning July 24 to allow for adequate assessment of returns to those areas. At Bruin Bay, despite a relatively strong chum return, waters of the subdistrict were restricted to two 48-hour periods per week after the Kirschner Lake sockeye hatchery revenue goal was achieved in order to provide limited protection to Bruin Bay pinks, which appeared to be weak at the start of that return. Seiners eventually



harvested just over 1,800 chums in the Bruin Bay Section of the subdistrict in late July, with an additional 600 chums taken incidentally in the nearby Kirschner Lake Section (Table 6), but by this time the local chum return was tapering off and no further harvest on these stocks occurred. Final escapement into Bruin Bay River was estimated at 13,600 chums, the highest since 1996 and the third highest since 1980 (Appendix Table 25).

Aerial assessment of northern Kamishak systems began on July 26, and although chum numbers were small at all locations, their presence in fresh water at this relatively early date suggested that returns could be strong. By the end of the first week of August, escapements into Cottonwood Creek, Iniskin River, and Ursus Cove systems had increased considerably. This strong showing substantiated the earlier assessment, and as a result waters of Iniskin, Cottonwood, and Ursus Cove Subdistricts were opened to seining on a schedule of two 48-hour periods per week beginning August 8. Escapements continued to build steadily at Cottonwood Creek and Iniskin River, while that into Ursus Cove systems increased even more rapidly. By August 16, the cumulative escapement into systems at the head end of Ursus Cove was estimated at nearly 13,000 chums, exceeding the upper end of the desired range of 5-10,000 fish. In response, waters of Ursus Cove Subdistrict, except those along the north shore, were opened to seining seven days per week beginning August 17. In an effort to bolster lagging pink salmon escapement, waters near Brown's Peak Creek in Ursus Cove were kept closed to seining.

Despite the various openings in northern Kamishak Bay during August, and the relatively strong returns, no effort targeting chums returning to these systems occurred. Cumulative chum salmon catches for the entire Kamishak Bay District this season totaled 66,100 fish (Table 6), the highest harvest since 1988 and the seventh highest in the last 20 years (Appendix Table 21). Escapements to all Kamishak chum systems, with the exception of McNeil River, met their respective goals (Appendix Table 25). The strong district-wide returns this season are a positive sign that the trend of weak chum salmon runs has reached a turning point and will hopefully return to former levels.

Nishak Bay District historically have been insignificant and, coho harvests within the district have at times been some lucrative late season catches. Coho assessment in areas from other areas within LCI suggested fair to good, but a lack of tender service and low prices conspired to result in less than a negligible incidental catch (Appendix Table 17), in the district.

Additionally focused on natural returns to the Delight and Port Dick Subdistrict. A lake stocking project in the Port Dick Subdistrict added additional fish for harvest in the early 1990's, but a small harvest in 1993 was the last documented. The project had a harvest of up to 23,400 sockeyes for the entire project area, compared to 21,600 fish (Table 3), considerably less than the 1990 harvest but still over 50% greater than the recent 10-year average.

Delight Lake systems in East Nuka Bay began on June 1, 1990. The next survey on June 21, conducted a noticeable increase in escapement at Delight Lake, with a noticeable increase in fresh water, while numbers at Desire Lake were small. Escapement at Delight Lake had more than tripled to 3,500 fish, while escapement at Desire Lake continued to lag at less than 300 fish. This situation was expected as sockeyes at Delight Lake is normally later than that of

Desire Lake, therefore in most years the sockeye escapement level at Desire Lake increases noticeably earlier than that into Delight Lake. A survey on June 26 revealed no increase in numbers at either system, but conditions were poor with solid overcast skies and steady drizzle, making aerial observation difficult. However, good survey conditions on June 30 contributed to an estimate of over 9,000 sockeyes in fresh water at Delight Lake, while escapement at Desire Lake had increased but was still uncharacteristically poor, totaling only 2,400 fish. Since the figure for Delight Lake represented 90% of the system's established escapement goal of 10,000 fish, waters of East Nuka Subdistrict south of the entrance to James Lagoon were opened to commercial seining five days per week beginning July 3. The regulatory markers protecting the mouth of Delight Lake Creek were not in effect for this opening, and waters of nearby McCarty Lagoon were also opened to fishing on the same aforementioned fishing schedule. Waters near Desire Lake were kept closed to fishing while monitoring of that system's return continued.

Commercial seine catches near Delight Lake suggested the run was continuing to build. Good weather conditions allowed steady aerial monitoring of the two lake systems throughout the month of July. Escapement counts at Delight Lake increased to a peak daily estimate of 12,300 sockeyes on both July 10 and July 25, but escapement at Desire Lake never increased to a level that warranted a fishery opening. The peak count of 12,300 sockeyes was used as the final escapement estimate for Delight Lake (Table 3, Appendix Table 23), while the final escapement estimate for Desire Lake totaled only 4,000 fish.

Low water levels, and subsequent cessation of upstream salmon migration, are typical conditions observed at Delight Lake. The system characteristically exhibits these effects following extended periods of warm weather and limited precipitation during mid to late summer periods. In 2000, low water levels at Delight Lake did not significantly impact the sockeye migration. Water levels dropped considerably in August, however, impeding the upstream movement of later returning coho salmon.

The first seine landing of sockeyes in East Nuka Subdistrict came on July 3 when over 4,700 sockeyes were taken by four vessels, considered quite reasonable for that date. Although effort

was modest, catches averaged over 1,500 sockeyes per day fished for the remainder of that week, during which time only those waters around Delight Lake were open to fishing. Catches jumped to the seasonal daily peak of nearly 7,400 sockeyes taken by three vessels on July 11. After that week, effort dropped and continued only for about another two weeks, with the final sockeye landing occurring on July 24. The cumulative commercial catch in East Nuka Subdistrict totaled 21,600 sockeyes in 2000 (Table 3, Appendix Table 14).

A third system of lakes known as Delusion (or Ecstasy or Delectable) Lakes in East Nuka Subdistrict has been monitored over the last decade to document the sockeye return there. Located near the head of the East Arm of Nuka Bay, the two-lake system is relatively new, formed during the late 1970's and early 1980's by a receding glacier. A review of charts and maps drawn prior to the mid-1980's substantiated this fact as no lakes are indicated at the site of the present bodies of water. Prior to the 1980's, no salmon were known to utilize the system, but in approximately 1989, during a routine aerial survey, adult sockeye salmon were documented in the system by the staff for the first time. Each year since then, aerial surveys have revealed sockeye salmon as well as pink salmon in the system. The peak 2000 aerial count of 2,090 sockeyes was recorded during an aerial survey on July 25. Little is known of the origins of this return, although the predominant hypothesis suggests that sockeyes probably strayed from nearby Desire and/or Delight Lake to colonize this new lake system. ADF&G personnel conducted sampling of sockeyes in this system during 1992, 1993, and 1994, with help from University of Alaska students on site. Otoliths and length measurements indicated primarily large 3-ocean fish (six years old). Additional tissue samples were taken from post-spawning individuals in 1993 and 1994 for inclusion into the genetic baseline data set and future genetic stock identification analysis.

### **Pink Salmon**

Harvest forecasts for pink salmon in the Outer District were fairly optimistic for an even year at 490,500 fish, over four times the recent 10-year average, with the greatest potential for harvestable surpluses expected at Port Dick, Rocky Bay, and Nuka Island. The actual harvest

of nearly 307,000 pinks (Table 5, Appendix Table 18) was the highest even-year catch for the district since 1970 and the fifth highest overall catch in the last 20 years.

For the third consecutive season, a management strategy based on real-time aerial assessment of returns and escapements was utilized for pink salmon throughout the Outer District. At Port Dick, a counting weir, as well as a remote video escapement recorder (RVER), consisting of a digital video camera connected to a time-lapse videocassette recorder (VCR), was also utilized to aid in the assessment program. The RVER is part of a pilot project aimed at determining the feasibility of deploying remote video counters in an intertidal environment at remote sites where other forms of assessment are problematic due to weather or are prohibitively expensive.

Aerial surveys in Port Dick began in early July, with pinks first observed in salt water on July 10, but numbers were small. The weir documented pinks in Port Dick (head end) Creek at the end of July, and a ground survey on July 31 detected nearly 6,500 fish in fresh water. Aerial surveys the next week documented a steady and significant buildup of pinks in salt water at the head end and along the south shore of Port Dick, cumulatively totaling nearly 50,000 pinks during a survey August 5. Although escapement into fresh water had not yet reached the minimum desired goal of 20,000 fish, the numbers appearing in fresh water at that early date suggested that the return was indeed strong. As a result, waters of the South Section of Port Dick Subdistrict were opened to seining on schedule of two 40-hour weekly fishing periods beginning August 7.

The first day of fishing produced a catch of over 56,000 pinks taken by five seiners. Catches over the next 10 days ranged from 20,000 to 37,000 pinks per day fished, with similar effort levels. All methods of assessment showed that pink escapement into Port Dick (head end) Creek was progressing at a relatively rapid rate during early and mid-August. Pink numbers on the shallow salt water "flats" at the head end of Port Dick also displayed levels suggested by the optimistic preseason forecast, with individual aerial surveys routinely recording estimates of upwards of 50,000 pinks in these waters throughout the month of August. By August 17, pink escapement into Port Dick had already fallen well into the desired range of 20-100,000 fish, with

a buildup of an estimated 45,000 pinks on the "flats" just  
ment objective had already been met, a special 12-hour  
t the head end of Port Dick was allowed on August 18 in  
cal spawning requirements. Although nearly 80,000 pinks  
e majority of the fish were heavily water marked, greatly  
ating them to "secondary" processing.

nd Creek in Port Dick began in early August. The first  
uring a ground survey on August 9, but with a count of  
traditional pattern of a slightly later run timing than that  
next ground survey twelve days later documented about  
rveys showed a significant buildup of pinks in salt water  
rim. Normally such circumstances would result in a seine  
r chum escapement into Island Creek was peaking during  
ound Island Creek in early August could have jeopardized  
stem. Once attainment of the chum escapement goal into  
he North Section of Port Dick Subdistrict were opened to  
lule of two 40-hour periods per week in order to harvest a  
still allowing limited escapement into the system.

ick, including Taylor Bay, also experienced strong pink  
showed good escapements into the small streams at the  
l fish noted in salt water. As a result, waters of the Outer  
ubdistrict were opened to seining beginning August 10 on  
periods per week as in the already open South Section.  
in all sections remained in effect for these openings. By  
into Taylor Bay systems totaled about 7,500 pinks.  
systems, with an additional 25,000 pinks observed in salt  
o formal escapement goal is established for these streams.  
e adequate in relation to the available spawning area. As a

result, waters open to fishing in Taylor Bay were expanded to include those normally protected by regulatory markers on a schedule of two 40-hour periods per week beginning August 18 to allow seiners opportunity to harvest a portion of the strong pink returns without jeopardizing escapements.

Despite the numerous and liberal openings throughout the Port Dick Subdistrict during August, all seine effort focused on the South Section. After the conclusion of the special 12-hour opening on August 18 at the head end of Port Dick, no further effort occurred because the saltwater migration of pinks had slowed and product quality had become an issue. The final harvest from Port Dick for the season totaled 306,600 pinks (Table 5, Appendix Table 20), the highest even-year harvest since 1970 and the third highest harvest for any year during the last 20.

This season's peak daily in-stream ground count at Port Dick (head end) Creek amounted to over 50,500 pinks on September 4, while the area under the curve (AUC) calculation using ground survey data totaled an overall escapement of 91,800 pinks. These numbers were not a surprise considering the 59,000 fish estimate of escapement during the 1998 parent year. In most years, ground survey estimates are used at Port Dick Creek to determine final escapements. This season, however, the final escapement estimate, totaling 122,900 pinks (Table 5, Appendix Table 24), was derived from the AUC calculation using aerial assessment data. The reason for this was threefold: the number of ground surveys this season was low (only three total) and the number of days between surveys therefore great; research has shown that ground counts tend to underestimate total fish when numbers of fish present in a given stream grow relatively large; and the number of fish documented by both aerial surveys (AUC) and the intertidal weir (142,450) was much greater than the number generated by the AUC calculation for ground surveys. Additionally, due to the seasonal conclusion of the project, the weir was removed from Port Dick Creek prior to the end of the pink return; passage rates at the time of removal ranged as high as 8,000 pinks per day. Had the weir remained in place, the pink escapement numbers for this method of assessment would have been significantly greater. The counts obtained from the weir, although likely very accurate, were not utilized for the published historical database

hen comparing totals from this season to all others, which generate final escapement estimates.

s adjacent to Island Creek, therefore the entire pink return The final estimate of escapement for Island Creek was x Table 24), the third highest for the system in the last 20 scapement totals for Island Creek have all occurred since

Island began on July 10, with about 600 fish documented ered a reasonably strong showing for that early date. failed to show significant fish movement into the system, umbers of pinks in the lower reaches of the creek and in the month of July and into early August. In contrast, pink west side of Nuka Island did not show any signs of aerial and ground surveys indicated that the escapement l at South Nuka Island Creek. In response, waters on the to seining beginning August 10 on a schedule of two 40- the western shore of Nuka Island were kept closed to there. Despite the opening, no effort occurred in Nuka ement into South Nuka Island Creek was estimated at 24).

August 8 produced an estimate of more than 13,000 pink , which was considered relatively strong for an even year to the creeks had not yet been documented by ground as the preseason forecasted return, suggested that the 000 pinks would be attained. As a result, waters of Port ining on a conservative schedule of two 40-hour periods ort occurred in these waters, however, as seiners elected



to focus on the much stronger pink return to Port Dick. Ground surveys indicated an estimated cumulative escapement of 16,700 pinks into Port Chatham systems (Table 5, Appendix Table 24).

Rocky River experienced one of the strongest pink escapements on record, with a final estimate of over 131,000 fish (Table 5, Appendix Table 24). Waters of Rocky Bay Subdistrict were not opened to fishing, however, because aerial surveys failed to determine the magnitude of the return until late in August, when the majority of the fish had already entered fresh water. Elsewhere in the Outer District, pink returns to other monitored systems were variable but generally fair to good, with most meeting their salmon escapement goals. Systems at Koyuktolik (Dogfish) Bay, traditionally known as chum salmon producers, ended the season with a cumulative escapement estimate of over 11,000 pinks, the first even-numbered year on record with an escapement exceeding 10,000 fish. At Windy Bay, Windy Left Creek failed to achieve the lower end (30,000) of its escapement range with a final estimate of 20,100, while Windy Right Creek exceeded the desired goal of 10,000 with an estimated 23,000. Desire Lake Creek, with an escapement range of 10-20,000 pinks, also experienced good escapement, totaling over 21,000 fish (Table 5, Appendix Table 24).

### **Chum Salmon**

Chum salmon numbers have experienced dramatic declines in the Outer District since the peak harvest years of the late 1970's and early 1980's. Large returns were once again not expected in 2000 due to a succession of poor returns over the past several seasons. Surprisingly, chum returns to a few locations in the Outer District proved stronger than anticipated. However, in an effort to reverse the trend of weak returns and allow stocks maximum protection, no specific commercial openings targeting chum salmon occurred this season. The final harvest of 300 chums (Table 6, Appendix Table 21) was all incidentally taken during other directed fisheries.

At Koyuktolik (Dogfish) Bay, chums appeared in salt water of Dogfish Lagoon during the last week of June, albeit in small numbers. The steady buildup of chums continued through the

of over 15,000 fish in salt water made on July 25. Similar  
just, as low water conditions, brought on by a lack of  
preclude) fish entry into fresh water at the small systems.  
systems was estimated at nearly 20,000 chums (Table 6,

er monitored chum salmon systems in the Outer District  
achieving its goal. Port Dick (head end) Creek fell short  
500 fish, while Rocky River escapement amounted to only  
goal of 20,000 (Appendix Table 25). Another bright spot  
at Island Creek, where escapement totaled 12,100 fish,  
goal range of 10,000 to 15,000 fish.

harvestable surpluses of sockeye salmon in Aialik and  
2000, with a district-wide preseason projection totaling  
only 64,000 sockeyes (Table 3, Appendix Tables 13 and  
for the district despite representing less than one-third of  
al was taken as hatchery cost recovery for the Bear and  
ble 1) in the Resurrection Bay Subdistrict.

urrection Bay Subdistrict, sockeye enhancement activities  
urn ranging as high as 29,000 fish assuming optimum  
eases. Based upon the expected long-term increase of  
Resurrection Bay Management Strategy was developed  
n allows the seine fleet to begin fishing on the Bear Lake  
in the outer reaches of Resurrection Bay in order to

promote product quality. In addition, several modifications to the plan, first implemented by emergency order in 1996, have been utilized each ensuing season. The first change increased fishing time from two 40-hour periods per week to a single five-day period (Monday through Friday). Based on experience over the past four seasons, this increase would allow greater opportunity to harvest sockeyes without jeopardizing the escapement goal for Bear Lake, set at 5,000 to 8,000 fish in the Trail Lakes Hatchery Annual Management Plan (AMP). The second change posted closed waters markers at the mouth of the Resurrection River to better define the river's mouth and the fishing boundaries, which had been problematic prior to 1996. Finally, an area of closed waters along the west side of Resurrection Bay between Caines Head and the city of Seward was implemented in order to protect returning chinook salmon, which are allocated entirely to the sport fleet and are illegal to retain in the commercial fishery.

A new change this season revolved around the escapement goal for sockeye salmon at Bear Lake. Sockeyes entering Bear Lake as escapement are later collected and utilized as a brood stock source for continuation of the enhancement project. The desired escapement goal was established at 8,000 fish. Normally, this goal is achieved with little inseason manipulation to the commercial fishery, and once attained, CIAA has routinely harvested excess fish for cost recovery. Because CIAA proposed to cease sockeye enhancement of nearby Grouse Lake in Resurrection Bay and simultaneously increase sockeye production at Bear Lake, more Bear Lake brood stock would theoretically be required. Although the formal escapement goal as established in the Trail Lakes AMP was not modified this season, CIAA resolved that it would voluntarily allow more fish into Bear Lake, up to a cumulative total of 12,000 adults, in order to achieve its newly increased egg take objective, thus foregoing a potential hatchery cost recovery harvest of up to 4,000 sockeyes.

The entire Resurrection Bay Subdistrict, up to a point one mile due south of Cape Resurrection and Aialik Cape, was opened to seining by emergency order beginning on May 15, the third Monday of May. Prior to 1998, these waters were opened on the second Monday in May, but experience had demonstrated that sockeyes did not begin arriving in Resurrection Bay in appreciable numbers until the end of the month. Despite presumption of an early run timing for

x utilized for the project had a documented run timing  
: years of adult returns from 1992 through 1994 actually  
ths. Between 1995 and 1999, with larger numbers of fish  
eared in waters at the head of Resurrection Bay during the

, fishermen were generally not eager to wet their nets,  
sh were unlikely to appear on the grounds until the end of  
red on May 22, one week after the opening, but fish  
er. By the end of that first week of actual fishing, about  
esting that the preseason forecast might be relatively  
ng the next week despite modestly increasing catches, but  
ew more boats as fishermen expected the catches to peak  
tches at the start of that second week of June appeared  
eek but began to decrease significantly by mid-week.  
to Bear Lake had occurred up to that time, a very unusual  
relatively strong through June 9, totaling nearly 16,000  
the preseason total return forecast of 29,000 fish, the lack  
ir and the reports of a sudden absence of fish in salt water  
herefore, in an effort to reverse the poor escapement-to-  
y was closed beginning June 9.

results, as escapement began to slowly build beginning  
6,800 sockeyes had passed the Bear Creek weir, and  
t the escapement goal of 8,000 fish was virtually assured.  
/ were reopened to seining beginning on June 22. Sockeye  
incidental harvest of chum salmon was unexpectedly high.  
arvest at 10,000 or more pounds for the day, which was  
ter than that of the sockeye harvest by weight. Using an  
nds per fish, the chum harvest on June 22 alone totaled

approximately 1,300 fish, far greater than the previously high cumulative catch of 130 chums during the entire month of June in the directed Resurrection Bay sockeye fishery. Comparison with historical Resurrection Bay seine harvests during the 1990's indicated that run timing for chum returns this season was considerably earlier than in any recent year. Since chum returns to local area systems had not been strong during the past decade, the staff concluded that continuation of the fishery targeting Bear Lake sockeyes would likely result in unacceptably heavy fishing mortality on chums and subsequently jeopardize escapements. Therefore, in order to protect chum salmon returning to local area systems, Resurrection Bay waters closed to seining at midnight June 22 for the remainder of the season. The cumulative commercial seine harvest totaled 19,200 sockeyes in Resurrection Bay (Table 3).

Daily counts past the Bear Creek weir peaked on June 20 at about 2,200 fish, steadily decreasing thereafter. Cost recovery efforts were initiated on June 25, after the cumulative escapement total had reached 11,100 sockeyes, but harvests remained relatively modest. The final escapement into Bear Lake totaled 11,900 sockeyes (Appendix Table 23), with an additional hatchery cost recovery harvest of approximately 1,700 sockeyes. The cumulative Bear Lake sockeye return totaled almost 33,000 fish, slightly exceeding the forecasted level of 29,000.

A second, more recent sockeye enhancement project was initiated at nearby Grouse Lake in 1996, when over 200,000 juvenile fish were planted in the system. Grouse Lake was subsequently stocked for two additional years, but adult returns have failed to meet expectations for unknown reasons, and CIAA has proposed to cease enhancement of Grouse Lake. As outlined in the Trail Lakes Basic and Annual Management Plans, the entire sockeye return to Grouse Lake is allocated specifically to CIAA for the purpose of hatchery cost recovery. For the first time, CIAA successfully petitioned for expansion of the Resurrection Bay Special Harvest Area (SHA; Figure 8) in 2000 to include a small area of marine waters so that sockeyes of Grouse Lake origin could be more efficiently harvested. Formerly, hatchery harvests were limited to fresh water, but poor product quality due to fresh water marking consistently resulted in extremely low value and sales revenue for these fish. By harvesting fish in salt water, it was hoped that product quality would increase commensurately and provide additional revenues. Cost

t a beach seine site near salt water in Salmon Creek and  
ek. A small number of returning adults of Tustamena  
g as the Grouse Lake return, was also expected back to  
ier experimental release of excess juveniles.

fish, Grouse Lake sockeye adults first began to show up  
ngle seine vessel, contracted by CIAA, began salt water  
hes were modest and, as expected, the incidence of non-  
elatively high. The cost recovery vessel's crew quickly  
areas within the SHA to maximize the sockeye catch and  
dditionally attempted to expeditiously sort out and release  
ce of pinks in the catch increased and that of chums  
the chartered vessel's skipper and crew kept the harvest  
low through careful sorting and releasing. Salt water cost  
.4, with a final harvest total of just over 14,000 sockeyes,  
; daily harvest occurred on July 23, when nearly 2,800

t the Salmon Creek beach seine site began on July 12 and  
peak daily harvest of 1,300 sockeyes on August 12. These  
f Grouse Lake sockeyes and a much smaller percentage of  
e "late run" fish, but due to the lack of a mark recapture  
n from the two components was possible. Beach seine  
s, but approximately 46% of the fish were of a reduced  
nd were sold under contract to a processor but eventually  
nizations.

began on July 11, but numbers were small. Efforts here  
h the peak daily harvest occurring around August 2, totaling  
l cumulative harvest at Grouse Creek was approximately

16,700 sockeyes, with about 44% of the catch composed of low quality fish. Harvests of the “late-run” fish at the Bear Creek weir totaled around 3,300 sockeyes, with a majority of these fish being of poor quality. The cumulative “late-run” harvest at the two fresh water weir sites was estimated at approximately 20,000 sockeyes. The final cumulative cost recovery harvest of sockeyes returning to Grouse and Bear Lakes (“late-run”), including purse seine, beach seine, and weir, totaled about 43,200 sockeyes. Although the traditional characteristic of poor product quality exhibited by “late-run” fish returning to these enhancement sites continued this season, the overall percentage of these reduced quality fish decreased over that of previous years, primarily due to a greater harvest of fish in or near salt water. Because of the difficulty of identifying the separate Grouse and Bear Lake components within the three different gear types used for “late-run” cost recovery harvest, it was not feasible to estimate the final cumulative return to Grouse Lake this season. However, the numbers certainly reveal that the run fell far short of the preseason forecast of 183,000 sockeyes.

At Aialik Lake in the Aialik Subdistrict, the first aerial survey of the season on June 14 produced an estimate of 60 sockeyes present in fresh water, while the next survey one week later revealed no increase in fish numbers. With such low numbers, no commercial effort was justified and the area remained closed to seining. Surveys continued, and by July 6, the escapement estimate had increased to 2,400 sockeyes. With a minimum desired goal of 2,500 fish, the goal was virtually assured, and as a result, waters of Aialik Subdistrict, including Aialik Lagoon, were opened to seining five days per week beginning July 10. Very little effort ensued, and total harvest for the season amounted to less than 100 sockeyes (Table 3, Appendix Table 14). Final escapement into Aialik Lake was estimated at 4,250 fish (Table 3, Appendix Table 23), within the goal range of 2,500 to 5,000 sockeyes.

### **Pink Salmon**

A harvestable surplus of over 46,000 pinks was forecasted in Eastern District waters for 2000, but this projection was questionable due to weak returns in some recent years. Surveys of Resurrection Bay systems were limited to on-grounds estimates in late July and late August.

that returns were relatively strong to most systems. At combined pink escapement goal is 15,000 fish, a total of (Table 24), the highest total since 1995. The figure for was estimated at 8,500 pinks, while at Humpy Cove (2,000 was estimated. Tonsina Creek produced an estimate of 6,600. The escapement goal of 5,000 fish has been met. Due to the strong returns during recent years, no openings for pinks were made and therefore no harvest occurred.

was, originally set at five days per week beginning July 10 after the sockeye run was effectively over. During some years it was closed to remain open despite knowledge that seiners were operating, targeting pink salmon bound primarily for Prince Rupert. The area was opened again in 2000 because the relatively strong returns threatened either local or non-local stocks. Very little pink was harvested totaling approximately 4,100 pinks in 2000.

Commercially important species in the Eastern District, but was harvested only about 500 fish annually. This season's catch was 1,000 fish (Table 6, Appendix Table 21), with the majority of the catch directed sockeye fishery during June. This unusual early run timing for Resurrection Bay chum returns this year. The commercial sockeye fishery. An estimated 4,700 pinks were harvested from Tonsina Creek in Resurrection Bay (Table 6).

Commercially important species in the Eastern District but are not currently harvested in the project, originating from Bear Lake, which benefits from the project.



sport fishermen in area waters. All coho salmon entered into the Seward Silver Salmon Derby are subsequently sold by the city of Seward, organizer of this sport fishing derby, to a commercial processor. Therefore, these catches are considered “commercial harvests” and are listed in the commercial catch tables to document this fact. In 2000, a total of nearly 1,700 cohos were entered into the Seward Silver Salmon Derby (Table 4). In addition, a portion of the returning adults from the enhancement project are harvested at the Bear Creek weir by CIAA as cost recovery for expenses incurred. Although CIAA normally sells most of these fish to a commercial processor(s), a high percentage of the fish this season were unmarketable due to excessive fresh water marking and were subsequently donated to various individuals, many of whom were dog mushers. Total hatchery harvest from the Bear Creek weir was 6,100 cohos (Tables 1 and 4), comprising over two-thirds of the entire LCI coho catch this season. Just over 700 cohos were collected for hatchery brood stock, with an additional 400 fish allowed into Bear Lake as escapement (Table 4). Total commercial catch in the entire Eastern District amounted to about 8,100 cohos (Table 4, Appendix Table 17), exceeding the recent 10-year average of 7,000.

## **SALMON ENHANCEMENT AND REHABILITATION**

### **Introduction**

Fisheries enhancement has played a major role in LCI salmon production for over two decades. Natural adult salmon returns to the LCI area continue to demonstrate wide fluctuations, often the result of environmental impacts such as streambed scour, de-watering, or redd freeze-out on spawning grounds. Since their inception in the mid-1970's, enhancement and rehabilitation projects have made significant contributions to both commercial and sport fishing harvests. These contributions have historically ranged from 24% to 90% of the entire LCI commercial salmon harvest and are expected to remain high in future years.

Projects initiated by the ADF&G and presently being undertaken by CIAA and/or CRRC provided an estimated 73% (1.25 million salmon) of the total 2000 LCI commercial harvest of

el, Kirschner, Bear, and Grouse Lakes sockeye salmon  
approximately 82% (196,500 fish) of the total LCI sockeye  
slightly from the record high of 84% contribution in 1995  
production accounted for 76% (1.05 million fish) of the 2000  
of 1.39 million fish.

average prices per pound in LCI, the estimated contribution  
salmon was 70% (\$1.25 million) of the \$1.79 million total  
salmon harvest. About 32% (\$0.57 million) of the total  
used for hatchery cost recovery purposes (Table 7). A brief  
projects in LCI follows.

Rearing Facility was constructed in 1976 with an initial  
salmon eggs, but expansion over time, including major  
1993-94, has increased its capacity to the present level of  
sock salmon have been the primary species produced at the  
facility was discontinued in favor of recent efforts directed  
at hatchery now has a sockeye egg capacity of 1.8 million  
the resulting fry, efforts to incubate and rear sockeye smolts  
are, resulting in an indefinite suspension of the sockeye

by Tutka Lagoon Hatchery totaled approximately 1.25  
is made to identify the contribution resulting from natural  
totalled 2.1% overall survival rate this season was an increase  
1999. The commercial harvest, including cost recovery,  
at a Bay and Lagoon (Table 9), accounted for approximately  
Southern District and 76% of the entire LCI commercial

pink salmon harvest. Pinks taken for hatchery cost recovery purposes from the Tutka Bay Subdistrict totaled 1.04 million fish, worth approximately \$336,000, which fell short of the \$432,700 sales revenue goal for 2000. Approximately 65.1 million short-term reared pink salmon fry were released into Tutka Bay in 2000 (Appendix Table 31), the second lowest since 1995 due to unforeseen mortalities.

### **Leisure and Hazel Lakes Sockeye Salmon Stocking**

Leisure Lake, also called China Poot Lake, historically was a system barren of sockeye salmon. A study initiated in 1976 involved the stocking of hatchery-produced sockeye salmon fry to determine optimum stocking levels prior to and after lake enrichment through fertilization. Because a barrier falls below the lake prevents upstream migration and precludes any adult spawning, it is desirable to harvest all returning adult fish in the terminal harvest area, China Poot Bay. Beginning in 1988, a similar sockeye stocking program was initiated at Hazel Lake, which empties into Neptune Bay and is located approximately three miles south of Leisure Lake. Since the inception of these projects, over 2.0 million adult sockeyes were estimated to have returned as a result of these stocking programs (Appendix Table 15), making significant contributions to the commercial and recreational sockeye harvests in the Southern District.

Because of the close proximity of the two terminal harvest areas, and the absence of a mark/recovery program, adult returns to Leisure and Hazel Lakes cannot be separately identified through sampling within the commercial catches and are therefore presented as a combined total. The cumulative total sockeye return to Leisure and Hazel Lakes in 2000 was estimated to be 102,900 fish (Figure 12, Appendix Table 15), the lowest since 1994. The cumulative commercial harvest of 97,100 fish comprised over 78% of the Southern District sockeye harvest and about 40% of the total LCI sockeye salmon harvest.

Stocking levels for Leisure and Hazel Lakes resumed at traditional levels in 2000, after large reductions in the numbers stocked due to hatchery difficulties in 1999. Approximately 1.7 and 1.2 million sockeye fry were stocked into Leisure and Hazel Lakes, respectively.

## itation

only significant stock of sockeye salmon native to the  
tely, the English Bay sockeye returns declined to their  
of the 1980's decade. Sockeye escapement estimates  
,500 to 8,900 fish; all but one of these years (1993) was  
00 fish (Appendix Table 23). The decline of the English  
restrictive management strategy for this area. The  
eries were closed during the sockeye run for most years  
depressed stock were initiated by ADF&G with an egg  
ise of 350,000 sockeye salmon fry in 1990 (Appendix  
es Commission (CRRC), in cooperation with the village  
nd the Bureau of Indian Affairs (BIA), has since taken  
continued egg collections/incubation, fry rearing, fry  
t enumeration weir.

English Bay Lakes prior to 1994 were index estimates  
beginning with the 1994 season have been monitored  
perated by CRRC. The cumulative total that first year  
Table 23), the highest return since 1982 and the first  
desired goal of 10,000 fish was achieved. In 1995 and  
12,400, respectively, with the former representing the

recently was estimated to be less than the published  
Edmundson et al. 1992). A plan to tightly control  
harvesting those fish surplus to the maximum desired  
3 staff, representatives of CRRC, and village residents  
ver the winter of 1995-96.

The preseason forecast for harvestable adults returning to English Bay Lakes in 2000 was relatively low, primarily due to excessive juvenile mortality during the incubation and juvenile rearing life stages. However, with a projection of 18,000 to 28,000 fish, the return could theoretically fulfill the established escapement goal and still leave up to 13,000 sockeyes available for harvest. As a result, the commercial set gillnet fishery in Port Graham Subdistrict was allowed to open by regulation on June 5. Given that the preseason forecasted return was minimal, fishermen within the Port Graham Subdistrict were cautioned that the fishery could be closed early to protect escapement and subsistence requirements.

Enumeration of the escapement through the counting weir began on May 29, and by June 7 counts suggested that the return might be slightly early, tracking ahead of the historic cumulative average escapement (e.g., 1,356 fish in 2000 vs. 336 last year). Meanwhile, commercial set gillnet catches in Port Graham Subdistrict totaled a modest 450 fish after the first two 48-hour fishing periods ending on June 10. By June 17, set gillnet totals had risen to only 1,153 and 956 fish for the Port Graham and English Bay Sections of Port Graham Subdistrict, respectively. High water washed out the weir and escapement numbers were not available for six days between June 9 and 14. On June 15, an aerial survey of the English Bay Lakes was unable to document any fish in fresh water. Additionally, only 242 fish were counted through the weir on June 16, two days after it was reinstalled, suggesting that the return was weaker than expected. The limited amount of escapement and catch information indicated that the preseason forecast may have been overly optimistic and the desired escapement might not be achieved. Therefore, on June 16, with less than half of the escapement goal confirmed, Department staff announced the closure of the commercial set gillnet fishery in the Port Graham Subdistrict beginning Monday, June 19. Despite the closure, the escapement failed to accumulate appreciably and by June 29 fell behind the historic cumulative average for that date. The final escapement count totaled 12,613 sockeyes (Table 3, Appendix Table 23), falling short of the 15,000 fish goal.

Subsistence fishing in Port Graham Subdistrict was allowed to remain open throughout the duration of the sockeye return on the regular schedule of two 48-hour fishing periods per

ory closing date of September 30. Total harvest of  
lable at the time of publishing. The 10-year average  
n for the two villages in Port Graham Subdistrict is 1,150

ared sockeye fry were released into English Bay Lakes in  
onal 100,000 fry were being held over winter for release  
d 1.47 million sockeye eggs were collected from brood  
ing 2000. These eggs were incubated during the winter of  
teye module at the Port Graham Hatchery.

#### ement

surrection Bay in the Eastern District, has been the target  
orts over recent years. Since 1962, this system has also  
h Division coho salmon enhancement program, part of  
ent of sockeye salmon into the lake. As a result, only a  
ing sockeye salmon remained at Bear Lake. In an effort  
adult sockeyes without adversely affecting coho salmon  
of Fisheries policy, CIAA undertook a sockeye stocking  
release of 2.2 million sockeye fingerlings. Since then,  
gs, and accelerated growth ("zero check") smolts have  
llion juvenile sockeye salmon each year (Appendix Table

02 was discouraging, with a total of less than 2,000 fish,  
f the following three seasons. The return in 1996 was  
aling nearly 53,000 sockeyes, the highest to date. Since  
i's hypothesized potential.

With the liberal five-day-per-week fishing schedule in place again this year, which allowed the fleet substantial harvest opportunity, seine catches for the season amounted to 19,145 sockeyes in Resurrection Bay, down from the 22,630 fish harvested in the 1999 season but still the second highest since 1996. CIAA cost recovery harvests at the Bear Lake weir totaled an additional 1,670 sockeyes. The harvests, when combined with an escapement of 11,900 into Bear Lake, pushed the total return of sockeyes to nearly 33,000 fish. Approximately 1.79 million sockeye fry were released into Bear Lake during 2000 (Appendix Table 31), while 3.23 million sockeye eggs were collected for incubation over the 2000-2001 winter at Trail Lakes Hatchery in Moose Pass.

A small number of returning sockeyes of Tustamena stock origin, with an identical (late) run timing as the Grouse Lake return, was also expected back to the Bear Creek weir as a result of an earlier experimental release of excess juveniles. These fish likely intermixed with those of Grouse Lake sockeyes and were undoubtedly harvested during late-season purse seine and beach seine hatchery cost recovery efforts. Because of the difficulty of identifying the separate Grouse and Bear Lake components within the different gear types used for “late-run” cost recovery harvest, it was not feasible to estimate the cumulative return of the “late-run” Bear Lake fish this season. However, the numbers were believed to represent only a very small portion of the overall late-run harvests. Total number of late-run fish actually harvested at the Bear Creek weir was approximately 3,500 sockeyes.

### **Grouse Lake Sockeye Salmon Stocking**

A relatively new sockeye enhancement project at Grouse Lake in Resurrection Bay of the Eastern District was initiated 1993. All returning fish were designated for hatchery cost recovery in accordance with the Trail Lakes Hatchery Basic Management Plan. Brood stock for this project, from Packers Lake on Kalgin Island in Upper Cook Inlet, were selected for late run timing characteristics so as not to overlap with the earlier Bear Lake sockeye return. The preseason forecast for the 2000 Grouse Lake return projected an adult return of up to 183,000 fish. However, the history of Grouse Lake enhanced returns failing to achieve the

s season's projection questionable. Additionally, the system have traditionally been plagued by poor product g. In an effort to increase product quality, CIAA create a provisional Special Harvest Area in saltwater and Resurrection River mouths to harvest the fish before "marked". Approval was granted for the 2000 season be made to minimize the incidental catch of non-target

cost recovery fishing on July 8 and ended the season on 14,000 sockeyes, 400 pinks and 300 chum salmon worth percentage of the sockeyes taken in salt water were late-run result of an experimental release of juveniles described salmon harvested in this area was considered to be much sh. The concurrent return of pink salmon to the Salmon est since 1995 and the second highest since escapements This required additional diligence on the part of the seine and mortality of non-target species, an accomplishment in catches reported above.

ry operations were conducted in 2000: a beach seine in Grouse (Lost) Creek. In Salmon Creek, an additional un Bear Lake fish) worth \$24,000 were harvested, while taken at the Grouse Creek weir. The Grouse Lake cost \$111,000.

and issues regarding product quality. CIAA has proposed use Lake and simultaneously increase early-run sockeye result, no sockeye smolt or fry were released into Grouse



## Chenik Lake Sockeye Salmon Enhancement

Chenik Lake, located in Kamishak Bay, historically was an excellent sockeye producer prior to the 1940's when annual runs approached 150,000 fish. Since that time, however, sockeye runs declined dramatically, forcing a complete closure of the Chenik area fishery beginning in 1952. By the mid-70's the average annual return to this system was less than 500 fish.

In 1978 ADF&G initiated a program to re-establish the sockeye runs and subsequently increase commercial fishing opportunities in the Kamishak Bay area. Sockeye fry from the now closed Crooked Creek Hatchery were annually stocked in Chenik Lake through 1996, and a partial migrational barrier at the intertidal mouth of Chenik Creek was modified to allow easier fish passage. Beginning in 1987, and from 1989-1991, lake enrichment occurred through the experimental application of liquid fertilizer. Increased sockeye escapements in the early 1980's augmented production, and the Chenik area was reopened to commercial fishing. Subsequent returns accounted for up to 50% of the total LCI commercial sockeye harvest in some years, approaching the historical record high runs of the 1930's.

In 2000, however, the sockeye return to Chenik Lake was the seventh consecutive sub-par run, with no commercial harvest and an estimated escapement of only 4,800 adults (Appendix Table 16). The lingering effects of Infectious Hematopoietic Necrosis Virus (IHNV), a disease commonly affecting both juvenile salmon and trout, have caused reduced adult returns in recent years. IHNV was documented in the Chenik system during the 1991-1993 smolt outmigrations, and is suspected of causing increased mortality to juvenile sockeyes, thereby reducing the adult returns. A thorough investigation of the relationship between the Chenik Lake sockeye stocking project and the IHNV problem was initiated during the winter of 1992-93, ultimately resulting in a staff recommendation to reduce fry stocking densities from peak levels occurring in 1989 and 1990.

ration of sockeye smolts at Chenik Lake was monitored  
rap. However, due to reduced adult returns and smolt  
veir after 1996 could not be justified.

are very complex and currently not well understood.  
d sockeye salmon fry were the source of the virus, a more  
come a reservoir for IHNV released from the sex products  
or their decomposing carcasses. It has been hypothesized  
s experienced by the sockeye stock at Chenik Lake in the  
esulted from IHNV epizootics caused by record high  
he 1930's.

ractical onsite treatment of IHNV other than perhaps  
ch was begun in 1993 with a reduction to just over one  
31). This experiment was inadvertently stretched to its  
when no hatchery-produced fish were released into the  
Hatchery, which were slated for stocking at Chenik Lake  
tbreak of the IHN virus at the hatchery facility. It should  
nted incidence of IHNV at the Crooked Creek facility in  
umed in 1995 with the release of 1.13 million sockeye fry  
) million fry were stocked in 1996, the last year stocking

ement would also help to decrease transmission of IHNV  
. Escapement into Chenik Lake, monitored via aerial  
nly 4,800 fish, the ninth consecutive year in which the  
e 10,000 fish goal (Appendix Table 23). Still, this year's  
into the system since 1992. The escapement shortfall,  
tion of supplemental stocking, equates to reduced fry  
etically benefit the system by reducing the potential for

IHNV epizootics. Furthermore, informal studies indicated that the resident lake trout population in Chenik Lake undoubtedly benefited from the regular stocking of sockeye fry. Evidence suggests that the inflated lake trout numbers may be continuing to suppress juvenile sockeye levels in the lake, thereby reducing the size of annual smolt outmigrations.

The aforementioned schemes of reduced adult escapements and decreased stocking levels appeared to successfully reduce the incidence of IHN in the system as evidenced by the healthy smolt leaving the lake from 1994 - 1996. Unfortunately, the numbers of outmigrating smolts during that time were miniscule relative to the stocking levels, and measures taken failed to achieve the expected increase in production at Chenik Lake. As a result, CIAA could no longer justify the expense of stocking Chenik Lake and discontinued the project after the 1996 season. The Department and CIAA will continue to include Chenik Lake in future enhancement considerations, but new information will undoubtedly be required before any projects are undertaken at the system.

#### **Other Sockeye Salmon Lake Stocking**

One other LCI lake continued to remain the site of an ongoing sockeye enhancement project in 2000. At Kirschner Lake in the Kamishak Bay District, first stocked with sockeye fry in 1987, the eleventh year of adult returns was marked by an estimated total return of 31,600 fish. This exceeded the preseason forecast by slightly over 1,000 sockeyes. Nearly all of the fish were harvested, as the returning fish are unable to reach the lake due to the steep falls at tide line. Few adult sockeyes were forecasted to return to nearby Bruin Lake in 2000, a result of the discontinuation of fry stocking in 1996, thus reducing the likelihood of mixed-stock sockeye harvests in the Kirschner Lake Section of Bruin Bay Subdistrict. The Kirschner Lake system has remained one of the steadiest producers of LCI stocked lakes since the inception of the program at that site. Approximately 248,000 fry produced by Trail Lakes Hatchery were stocked into Kirschner Lake during 2000 (Appendix Table 31), an increase over last year when incubation and/or rearing problems reduced the numbers of fry available for stocking. Four other lakes, evaluated through pre-stocking studies conducted between 1986 and 1989,

ween 1988 and 1996, were again not stocked in 2000 as  
en discontinued. The four lakes included Bruin Lake,  
Lower Paint Lake, all in the Kamishak Bay District

ay Chinook Salmon Enhancement

ects at Halibut Cove Lagoon and Seldovia Bay involve the  
1 the objective of increasing sport fishing opportunities in  
ut Cove Lagoon is the oldest and one of the most popular  
.CI, operating continually with an annual release of smolts  
from the two stocking programs are not intended for  
l harvest of these chinook salmon in the commercial set  
-term estimated incidental harvest of enhanced chinook  
libut Cove Subdistrict has been approximately 30% of the  
available for the commercial fishery in Seldovia Bay  
chinook harvest during 2000 were not available but were  
ge. The commercial harvest of chinook salmon in Halibut  
this season totaled approximately 600 and 250 fish,

fish production and provide increased employment  
Port Graham, the Port Graham Hatchery Corporation  
ermit to operate a private non-profit (PNP) hatchery in  
ximately 21 nautical miles southwest of Homer on the  
2). The hatchery had conducted experimental egg-takes  
ational permit from 1990 through 1992, while these  
l in the Port Graham Hatchery Basic and Annual

Management Plans (BMP/AMP). The PNP permit for PGHC allows pink salmon brood stock collection from a natural run in the Port Graham River, at the head of Port Graham. However, the Port Graham River pink run historically has experienced significant natural fluctuations in escapements despite conservative fishing schedules, causing some concern for protection of the natural stocks. Consistent with the priority of managing for natural stocks (AS 16.05.730), a brood stock collection schedule based on the desired natural escapement into Port Graham River as well as historical escapement levels has been developed to offer maximum protection to the wild pink salmon stock during years of weak returns. Harvest of returning hatchery stocks could potentially occur in commercial purse seine and set gillnet fisheries as well as a subsistence set gillnet fishery in Port Graham. Hatchery fish undoubtedly intermix with wild stocks bound for the Port Graham River. Management decisions attempt to address the effects of these various fisheries to protect natural stocks until adequate escapement into Port Graham River can be confirmed. A small natural return of chum salmon to Port Graham River also occurs, and since this run has been depressed in recent years, management measures also strive to protect this species as well.

The approved Port Graham Hatchery BMP designated a Special Harvest Area (SHA) to allow for brood stock collection and cost recovery harvest (Figure 7). The SHA was designed to provide a migration corridor on the northeast side of the bay for wild stocks traveling to Port Graham River at the head of the bay, thus affording some limited protection to the natural spawning stocks of pink and chum salmon.

Initial adult returns to the hatchery in both 1992 and 1993 failed to appear despite predictions of at least moderate returns. Because no fry were released in 1993, both the forecast and actual return for 1994 were zero. The 1995 pink return to Port Graham Hatchery was forecasted at 20,000 to 50,000 fish, with the actual return totaling an estimated 20,000 pinks, while only 2,700 fish returned in 1996, when the preseason forecast called for 7,000 to 10,000 returning pinks. In 1997, returns finally fell within the preseason forecast range of 80,000 to 200,000 pinks, with a total run size estimated at about 130,000 fish. Despite a forecast of 30,000 to 50,000 fish in 1998, the return totaled less than 13,000 pinks. Because of the fire in

January 1998 that destroyed all of the hatchery pinks and sockeyes in incubation at the time, no pink salmon returned to the hatchery in 1999.

The 2000 Port Graham Hatchery forecast of 150,000 fish resulted from the 1999 release of 4.62 million pink salmon fry. The actual total return of 38,500 fish, all of which were harvested for hatchery brood stock, fell short of that forecasted figure. Approximately 29.5 million eggs were collected for incubation in 2000-2001. In the Port Graham River approximately 15,600 pink salmon were counted as escapement, the highest since 1991, but still short of the escapement goal of 20,000-40,000 fish. As a result of the one-time 1999 English Bay River pink salmon egg-take, an estimated 1.14 million pink salmon fry were released from the Port Graham hatchery facility in the spring of 2000.

Although all efforts prior to 1993 were directed towards pink salmon, sockeye salmon production has also been underway at the Port Graham Hatchery. The facility has incubated sockeye salmon eggs collected from English Bay Lakes, destined for release back into that system, since 1993 (eggs from this collection site were formerly incubated at Big Lake Hatchery near Wasilla). A total of 1.47 million sockeye salmon eggs were collected from English Bay Lakes brood stock for incubation this past season.

In an effort to rehabilitate depressed coho salmon stocks in Port Graham River, a Permit Alteration Request (PAR) by PGHC to produce approximately 25,000 presmolts for stocking in the upper portion of Port Graham River was approved in 1995. PGHC began to monitor the smolt outmigration from that system in 1996 and collected eggs from adults beginning that same year. These eggs were incubated at the Port Graham Hatchery and the resultant fry were subsequently released into Port Graham River. No estimate of adult returns from this stocking program, first expected in 1999, were made. However, the project was discontinued after the 1998 release and its future is currently uncertain.

Construction of the new Port Graham cannery and hatchery complex has now been completed, with the cannery operational during the summer of 1999 and both facilities online in 2000.

## **Paint River Fish Pass**

The Paint River system in the Kamishak Bay District contains at least 40 kilometers (25 miles) of potential salmonid spawning and rearing habitat. Currently the Paint River system is barren of salmon because of a waterfall at tide line that was impassable prior to 1993. ADF&G and CIAA initiated feasibility studies for a fishway in 1979. CIAA received State and Federal grant funds to build the fishway, completing construction in the fall of 1991. ADF&G Commissioner Carl Rosier declared the fish pass officially operational in January 1993.

To test the feasibility of developing a sockeye salmon return to the fish pass project site, the Paint River Lakes were first stocked with sockeye fry in 1986 and annually from 1988 through 1996, except in 1994 when no fry were available (Appendix Table 31). Because adult returns from these plantings proved negligible, CIAA discontinued fry stocking after the 1996 season. Only 30 adult sockeyes were observed during aerial surveys of the Paint River mouth and Akjemguiga Cove during 2000, the tenth consecutive year of meager returns to this enhancement site. Because of the small numbers of returning fish, the fish pass was not opened to migrating salmon and no freshwater escapement occurred.

## **2001 COMMERCIAL SALMON FISHERY OUTLOOK**

### **Sockeye Salmon**

Commercial sockeye salmon harvests in LCI during 2001 could exceed 280,000 fish, roughly representing the recent 10-year average. Nearly 70% of the total sockeye harvest should be a result of continuing enhancement and lake stocking projects in LCI. Beneficial results of Leisure Lake fertilization should once again be evident in 2001, with an expected return of about 90,000 sockeyes to China Poot Bay. An additional 60,500 sockeyes are expected to return to Neptune Bay/Hazel Lake based on annual stocking rates and historical survival estimates.

District is expected to produce just over 23,000 adult sockeye based on consistent stocking rates and resultant adult returns over the past decade. Stocking in other Kamishak Bay and Saint River Lakes, has now been discontinued, and these systems have no harvestable sockeye returns in 2001. No harvest is expected from the Kamishak Bay District during 2001 as a result of the widespread IHNV epizootic there.

In 1997 and 1998, the 2001 enhanced sockeye return to the system (enhanced runs) is expected to produce a harvest of only 3,200 fish based on escapement requirements. The sixth year of enhanced stocking near Seward in Resurrection Bay, is also expected to be successful, with the harvest estimate ranging up to 11,000 fish. Since the project was specifically selected for late run timing, it is expected that the run will peak in late July or early August and therefore not overlap with the timing of Bear Lake sockeyes. As previously stated, the primary goal is solely for CIAA hatchery cost recovery and no commercial harvest is anticipated.

CI are based solely on average historical harvests and escapements of 6,000 fish to commercial catches in 2001. Despite not having good runs in recent years, natural sockeye runs have nevertheless shown improvement in spawning escapements to most systems. The majority of the harvest is attributed the most to the harvest of non-enhanced stocks, primarily from the East Nuka Bay systems of Delight and Desire Lakes in the Eastern District, and Mikfik Lake in the



### **Pink Salmon**

Harvest of pink salmon in LCI during 2001 could reach 1.7 million fish, with enhanced production expected to provide 98% of the total. Tutka Hatchery, in the Southern District, is expected to contribute up to 1.66 million pinks to commercial harvests. However, if prices for this species continue to remain depressed, it is likely that the hatchery will require the majority of the return in order to meet brood stock and revenue requirements.

Natural pink salmon spawning escapement levels into most major LCI systems were generally poor in 1999, contributing to a harvest projection of less than 35,000 naturally produced pinks throughout the entire LCI management area. With such a meager forecast, and the recent history of erratic tender service in remote districts, it is unlikely that the natural pink harvest forecast will be attained in 2001.

### **Chum Salmon**

Based solely on recent years' average harvests (after 1988), the total LCI commercial chum salmon catch is projected to be as high as 16,000 fish during 2001. If another unexpectedly strong return occurs, as did during the 2000 season, actual harvests could be even greater. The LCI chum harvest will consist exclusively of natural production since chum salmon enhancement is no longer conducted in LCI.

### **Chinook and Coho Salmon**

No formal harvest forecast is prepared for chinook or coho salmon in LCI. However, average annual harvests since 1980 indicate that about 1,300 chinook and 14,000 coho salmon can be expected to contribute to LCI commercial harvests in 2001.

projected harvest figures by species in the Lower Cook

of Returns	Harvests of Natural Returns	Total Harvest
<sup>a</sup>	<sup>a</sup>	1,300 <sup>a</sup>
4,200 <sup>c</sup>	86,000 <sup>b</sup>	280,200
<sup>a</sup>	<sup>a</sup>	14,400 <sup>a</sup>
5,000 <sup>c</sup>	34,600	1,689,600
0	15,500 <sup>b</sup>	15,500
9,200	136,100	2,001,000

inook and coho salmon represent average harvests since  
 nation of naturally-produced fish as well as fish produced  
 ; no attempt is made to separate the two components.  
 iced sockeye and chum salmon are simply average  
 l 1989, respectively.  
 t recovery harvests.

## SONAL USE SALMON NET FISHERIES

### BAY PERSONAL USE FISHERY

y) fall coho salmon gillnet fishery dates back prior to  
 known as a “personal use” fishery during the years 1986-  
 “subsistence” fishery in 1991, 1992, and 1994. Numerous  
 of this fishery over the past 15 years, causing it to change

The most recent court action, after the 1994 fishery,  
 “non-subsistence” areas originally created by the Alaska  
 l because most of Kachemak Bay was included in a “non-  
 ery and the regulations governing it were no longer valid.  
 ulations governing this fishery into permanent regulation  
 e subsistence regulations formerly governing the fishery.  
 mained in effect since that time.

The target species in the Kachemak Bay gillnet fishery is coho salmon, with returning fish a mixture of natural stocks primarily bound for the Fox River drainage at the head of Kachemak Bay and enhanced runs bound for the Homer Spit fishing lagoon and, formerly, Fox Creek/Caribou Lake near the head of Kachemak Bay. The regulations governing the fishery are found in the Personal Use Coho Salmon Fishery Management Plan (**5 AAC 77.549**). The BOF addressed this fishery during their last meeting in Homer (November, 1999). After hearing the staff's concerns regarding the harvest of wild stocks of cohos, the BOF adopted a change to the regulatory guideline harvest level (GHL), from a former range of 2,500 to 3,500 coho salmon to a new level of 1,000 to 2,000 cohos. The new GHL was implemented for the first time during the 1999 season. Incorporated into the management plan is a requirement that cohos taken during the Seldovia area subsistence salmon fishery be included as part of the personal use guideline.

All other regulations from the previous year's fishery remained essentially unchanged for the 2000 personal use fishery. The regulatory opening date for the fishery was August 16. However, since the fishery occurs on a schedule of two 48-hour fishing periods per week, from Monday 6:00 a.m. until Wednesday 6:00 a.m. and Thursday 6:00 a.m. until Saturday 6:00 a.m., the 2000 fishery would begin during darkness at 12:01 a.m. Wednesday, August 16, if allowed to open by regulation, and would subsequently close six hours later. By delaying the opening through *LCI E.O. No. 2-F-H-022-00* until 6:00 a.m. Thursday, August 17, participants would have adequate daylight to set gear, enforcement would be more efficient, and the fishery would start at the beginning of a regularly scheduled 48-hour weekly fishing period. Legal gear was limited to a single set gillnet not exceeding 35 fathoms in length, 45 meshes in depth, and 6 inches in mesh size. Nets were not permitted more than 500 feet from the mean high water mark, and a net could not be set offshore of another net. A permit from the Homer office was required, with an Alaska resident sport fishing license necessary to obtain a permit. The seasonal limit was 25 salmon per head of household and 10 additional salmon per each dependent. Prior to 1991, little Department management interaction occurred and the fishery often proceeded until the regulatory closing date of September 15, regardless of the harvest level. Between 1991 and 2000, years of intensive

ge fishing time allowed in this fishery was 48 to 192  
led fishing periods.

d from the early August Seldovia subsistence fishery,  
remained at 1,000 to 2,000 fish for the personal use  
August 17, the Department requested voluntary daily  
fishing the fishery, as has been the case since 1991. After  
30% of permit holders reporting their catch, an estimated  
th the lower end of the GHL not yet achieved, the staff  
nd 48-hour fishing period. Early in that second period,  
orts indicated that adult coho returns appeared to be  
e of the Homer Spit where the majority of effort and  
became apparent that the low volume of volunteer catch  
actual catches observed during tag recovery interviews.  
t that nearly 84% of the lower end of the GHL was  
d, the staff determined that the catch would likely fall  
end of the second period. Therefore, *LCI E.O. No. 2-*  
*000 Personal Use Coho Salmon Fishery* at 6:00 a.m.  
der of the season after only 96 hours of fishing time.

the 2000 fishery (Appendix Table 26). Approximately  
d their catches by phone or returned permits. Of this  
ctively fished, 55 (26%) did not fish at all, and the  
did not report. A total of 205 permit holders (96%)  
n permits actually returned and voluntary catch reports,  
coho salmon, 304 pink salmon, 28 sockeye salmon, 104  
e 26). The harvest exceeded the GHL by about 64 fish  
sis of tag recovery data by the Sport Fish Division  
catch east of the Homer Spit, where the majority of the  
hery origin.

The duration of the 2000 Southern District personal use fishery (96 hours of fishing time) was half the previous year, and shorter than the 1991-1999 average of 114 hours. The number of permits issued (213) was an increase of 31% over 1999, but down from the 1969-1999 average of 301, while 71% of the permits issued actually fished, a slight reduction from 1999 (Appendix Table 26). The coho harvest of 2,064 fish, about 13% greater than that of 1999, was the highest since 1996.

Reasons for the increased effort during the 2000 fishery are difficult to explain. Popularity of the sockeye salmon personal use and sport fisheries north of Homer (e.g. the Kasilof and Kenai River dip and set gill net fishery) has increased in recent years. Perhaps reports of the poor July return of sockeye salmon to Upper Cook Inlet, particularly to the Kenai River, compelled more people to register for the 2000 personal use coho fishery in Kachemak Bay.

The short duration of the fishery in 2000 was not expected, particularly when compared to the past three years when the fishery was open for 114-192 hours. These years also correspond to the reduced or total lack of contribution of adult coho salmon from the discontinued Caribou Lake Stocking program.

As expected, the most fishing success in 2000 occurred in those waters adjacent to the Homer Spit enhancement lagoon. Other areas that formerly produced reasonable catches during years of Caribou Lake enhancement, especially along the north shore of Kachemak Bay from Mud Bay to Swift Creek, were not expected to produce significant harvests and indeed didn't.

The new, lower GHL implemented last year appears to have succeeded at protecting the majority of naturally produced cohos by prompting a closure prior to the peak of the migration. Although catch data indicated that the GHL was exceeded by about 64 fish or 3.0%, analysis of tagged fish recovery showed that approximately 80% of the cohos caught on the east side of the Homer Spit during the set gill net fishery were of hatchery origin.

is year appeared to be slightly above average. Sport and  
ized as indicators of run strength, but as has become  
mercial catches in LCI did not accurately reflect the  
o a lack of directed effort. Informal observations in the  
tions during tag recovery efforts conducted by the Sport  
returns.

ersonal use fishery during most of this decade, the staff  
opening to inform the public of the anticipated short  
knowledge among experienced local participants. As  
brevity of the fishery led to intense competition for  
g the east side of the Homer Spit. This area continues to  
to fish, undeniably due to the coho enhancement project

onsidered only average in terms of harvest productivity.  
hanced coho return have combined to incite fishermen to  
situation which resulted in numerous violations during  
st time that Fish and Wildlife Protection (FWP) officers  
s in 1994. Since then, many verbal warnings have been  
nto the Homer ADF&G office. This year FWP officers  
ishery, with five subsequent visits during the second 48-  
ie case, the presence of these uniformed FWP officers  
y compliance; no formal citations were issued and only

was over twice the long term average (Appendix Table  
run chinook salmon, stocked by the Sport Fish Division,  
dates. Informal interviews with sport fishers, as well as

observations of this year's sport fishery at the Homer Spit enhancement lagoon, confirmed that the return of late-run chinook was the weakest since runs of these fish began in 1996.

Three aerial surveys of Clearwater Slough, the major coho index stream at the head of Kachemak Bay, were conducted in August and September to gauge escapements. An estimate of 630 cohos generated during the first survey, August 22, was the highest for that early season date since 1991. The estimate made during the second survey, conducted on September 7, was identical to the first; however, no coho salmon were seen on the final survey conducted on September 19, suggesting that the natural returns may have been slightly early this year.

The catch for the 2001 personal use fishery is expected to be comparable to the previous four-year period, 1997-2000, a period when adult coho returns from Caribou Lake enhancement no longer contributed to the fishery. However, the length of time necessary to achieve the GHL is difficult to forecast particularly when comparing this year's relatively short fishing time to the previous three years (96 hours vs. up to 196 hours). Fishing effort and participation for 2001 is expected to be comparable to that of the past two years when the fishery was managed with the 1000-2000 fish GHL in place, but once again could be affected by other alternative fisheries elsewhere in Cook Inlet. Although limited as an inseason management tool, voluntary catch reports will once again be employed to help determine an appropriate closure time. Based on experience gained during the past nine years' fisheries, and especially that of the past four seasons, it should be possible to keep the harvest within the GHL.

## **NANWALEK/PORT GRAHAM SUBSISTENCE FISHERY**

One of two subsistence fisheries in LCI during 2000 occurred near the villages of Nanwalek (formerly English Bay) and Port Graham, located approximately 21 nautical miles southwest of Homer on the south side of Kachemak Bay (Figure 2). Most fishing occurs within close proximity to the respective villages and targets sockeye salmon returning to the English Bay Lakes system early in the summer and pink salmon returning to Port Graham and English Bay

Additional fishing also occurs in Koyuktolik ("Dogfish") lakes south of English Bay, targeting non-local stocks of chum salmon.

Bay Lakes was severely depressed for much of the late 1990s, failing to achieve the minimum escapement goal for nine years. Recent returns have been bolstered as a result of a buy-back program initiated by ADF&G and subsequently taken over by the village of Nanwalek (CRRC) on behalf of the village of Nanwalek. The village's return to English Bay Lakes in 2000 was again hampered by high juvenile mortality during the incubation and juvenile rearing periods. At the end of the projected 18,000 to 28,000 fish return, the village's escapement goal of 15,000 sockeyes, as well as leave the subsistence fishery was allowed to remain open on a limited basis for periods per week. In addition, the commercial set gillnet fishery was closed on June 5. However, the commercial fishery was allowed to continue fishing time because low catches and limited escapement goals might not be achieved. Although limited in 2000, the subsistence fishery was allowed to remain open until the closing date of September 30. An enumeration weir was installed to monitor sockeye escapement in season, as has been

Subsistence salmon catch figures for Port Graham and other areas and subsistence harvests from both these areas in previous years are listed on page 29.



## SELDOVIA AREA SUBSISTENCE SALMON GILLNET FISHERY

A set gillnet fishery in the waters near Seldovia (Figure 2) on the south side of Kachemak Bay in 2000 was the fifth year of LCI's newest subsistence salmon fishery. Established by the Alaska Board of Fisheries (BOF) at their LCI meeting in the fall of 1995, the fishery was designed to primarily target non-local stocks of chinook salmon as they transited these waters. In considering initial seasons and bag limits, the BOF carefully restricted the fishery to reduce potential interception of enhanced chinook salmon bound for a popular stocking site in the Seldovia small boat harbor. These enhanced fish were intended to principally benefit sport fishermen and were not considered "customary and traditional" for subsistence purposes.

Regulations in the fishery included a "split" season, the first occurring from April 1 through May 30 and the second occurring during the first two weeks of August. A guideline harvest limit of 200 chinook salmon was established for the early season, while the annual possession limit was set at 20 chinooks per household. During the April/May season, fishing was allowed during two 48-hour periods each week, while in August the fishery was only open during the first two weekends of the month. Waters open to fishing included those along the eastern shore of Seldovia Bay as well as a short stretch of water outside of Seldovia Bay proper just west of Point Naskowhak (also called the "outside beach"). Gear was limited to set gillnets not exceeding 35 fathoms in length, 45 meshes in depth, and six inches (stretched) mesh size, identical to gear regulations governing the nearby Port Graham/English Bay subsistence fishery. A permit issued by the Department was required prior to fishing, and catches were to be recorded on the permit and also voluntarily reported to the Department's Homer office inseason so that cumulative harvest totals could be monitored.

A total of 28 permits was issued for the early season, while no permits were issued for the August season. Although permit holders were required to call in their catches inseason, few actually did. At the close of the early season, nearly all permits were returned to the Department as required by regulation, and catches were determined from records on each permit. For the early season, 17 of 28 permit holders (61%) actively fished, four (14%) did

%) failed to return his/her permit. Total reported catch  
s, and 14 chums (Appendix Table 30).

highest since the fishery began in 1996, with the total  
8 more than 1999 and over twice the average harvest.  
st part of the catch with 236 harvested, up from 130 in  
sh is also the highest recorded, 36 more than last year.  
d to a longer season for the third straight year (the BOF  
ly season, from May 20 to May 30, beginning with the  
to more chinook and sockeye salmon in Seldovia area  
stence harvests. In addition, participants continued to  
niques and productive locations.

very similar to that of 2000. Because the fishery is still  
uing to learn the most productive fishing sites and  
e factors, the harvest during the early season could  
st limit in 2001.

## **IAL HERRING FISHERY**

### **NTRODUCTION**

I herring management area is divided into five separate  
ing fishing historically occurring in all but the Barren  
shing began in the Southern District in 1914 as a gillnet  
saltries, six near Halibut Cove, were operating during  
purse seines began in 1923, and after three subsequent  
aching 8,000 short tons (st), herring populations, along

The next LCI herring fishery began in 1939 and was centered in the Resurrection Bay and Day Harbor area of the Eastern District. This was a purse seine fishery with the product used exclusively for oil and meal reduction. Peak harvests occurred from 1944 through 1946, averaging 16,000 st each year, but stocks sharply declined thereafter, apparently due to overexploitation.

Japanese markets for a salted herring roe product resulted in development of a sac roe fishery in the 1960's. Market demand and the relatively high prices paid to fishermen caused rapid expansion of the fishing fleet and harvest. Although Department management and research efforts lagged behind the rapid growth of the fishery, conservative management strategies and guideline harvest levels were established in response to historical overexploitation of the herring fisheries statewide.

## **2000 SEASON SUMMARY**

For the second consecutive year, all of the LCI management area was closed to commercial herring fishing for the entire season in 2000. The preseason forecast for herring in Kamishak Bay District, where the commercial sac roe fishery has traditionally occurred, predicted a total biomass 6,330 st. Since this projection suggested that stocks could be below the threshold of 8,000 st for which a commercial harvest may occur, the staff felt it prudent to preclude a fishery in order to provide maximum protection to the stocks during the spawning migration to promote increased reproductive success. Appendix Table 32 lists historical harvests by district in the LCI herring fishery.

Due to invariably poor weather and water clarity, aerial surveys rarely provide reliable estimates of total biomass returning to Kamishak District Bay waters (Otis et al. 1998). As a result, an age-structured-analysis (ASA) model has been used for the past seven years to forecast herring abundance for Kamishak Bay, as well as to "hindcast" previous years' total abundance. This model incorporates a variety of heterogeneous data sources including: times series of commercial

composition; and aerial survey biomass estimates from years of coverage. The model simultaneously minimizes the observed return data for each of its components, updates the model, and returns a forecasted estimate of the following year's total 2000 return at 8,117 st (Otis *in press*; Appendix 1). The previous year's estimate. Although no commercial fishery was conducted, a single test fishing charter to collect samples for age and sex was conducted in the traditional commercial fishery (late April/early May). The results (Table 10), while the exceptionally strong 1988 cohort, continued to decline. The fishery for many years, continued to decline. The fishery conducted a second charter, during the latter portion of the season, of younger-aged fish, was unavailable in 2000.

the Southern District in 2000, as fish were never present in the district. The Outer and Eastern Districts also were not opened in 2000. The local predominance of young (age-3 and age-4) fish, roe and the exploratory nature of the fishery, have discouraged fishing in these two districts.

**ASSESSMENT METHODS**

About the herring spawning season to determine relative abundance in the Kamishak Bay and Southern Districts. Data were collected from those used since 1990. Numbers and distribution of herring in the milt, and visibility factors affecting survey results were recorded. Standard conversion factors of 1.52 st (water depths of between 16 and 26 ft), and 2.83 st (water depths greater than 26 ft) were used to convert estimated herring school surface areas to

Survey conditions in the Kamishak Bay District were considered fair to good throughout the 2000 herring migration, allowing reasonably thorough survey coverage of the entire district. A total of 13 comprehensive surveys were completed in the Kamishak Bay District, covering the period from mid April to early June. One 13-day "gap" in the surveillance coverage occurred when no surveys were flown between the dates of May 12 and May 25 because of poor weather. Eight surveys were completed in the Southern District, while no comprehensive surveys of the Outer and Eastern Districts were conducted this season.

Without a commercial fishery in the Kamishak Bay District, the Department was unable to utilize the fleet to collect samples for age composition analysis. However, for the fifth consecutive year, a chartered commercial purse seine vessel collected herring samples throughout the district. Unfortunately, funding was insufficient to conduct two separate sampling charters, one in the early portion of the spawning migration and the second during the later segment, as has been the case during the previous four seasons. As a result, the staff elected to conduct the single charter beginning in late April and extending into early May, the time period when the commercial herring fishery in Kamishak Bay traditionally occurs, to further aid in understanding the dynamics of the Kamishak Bay herring stocks. During the nine days spent in the district, the contracted vessel made a cumulative total of 10 sets, resulting in the collection of nearly 2,000 fish for AWL samples. Additional hydroacoustic observations were concurrently accumulated during the charter. The information gathered during this sampling effort provided age-class data that was essential in generating the 2001 herring forecast.

## **SPAWNING POPULATIONS**

### **Kamishak Bay District**

During the 2000 season aerial surveys to estimate biomass in the Kamishak Bay District were conducted from April 17 through June 9. Herring were first observed on May 4 when 44 st were estimated near Chenik Head and an additional 5 st noted near Bruin Bay. The highest daily

nal surveying period was made on June 5 with an estimate  
ented relatively high percentages of age-4 and age-7 fish in  
upling charter conducted between April 27 and May 5.  
luring the “late” portion of the herring return to confirm  
pling charters indicated that the incidence of younger age  
time, and it was believed that this increase once again

as estimated at 8,117 st (Table 10, Appendix Table 35)  
data analysis from test fishing showed that age-3 fish  
season, at 31% of the total biomass by weight (Table 10),  
age-4 fish (18%) and age-7 fish (17%). The formerly  
herring continued to decline, representing only 2% of the  
e entire 2000 return was composed of fish age-5 and  
ler than age-10 (Figure 16, Table 10). The lack of late  
npered the staff’s ability to confirm the influx of younger  
rs (Yuen 1994), thus making the generation of the 2001

ctivity occurred during surveillance flights, considered  
ad cumulatively amounting to just over 0.6 linear miles of  
hedule of surveillance flights, however, no correlation  
herring abundance was attempted. Therefore, the low  
s not necessarily considered indicative of a weak herring

District were flown between May 2 and June 6, all  
e 2000 run biomass, estimated as the sum of all daily

biomass estimates, totaled nearly 7,200 st, the highest in many years. The peak individual biomass survey (1,723 st) occurred on May 26, with the majority of herring observed between Mallard Bay and Glacier Spit. Peak surveys in areas where herring historically have been observed were as follows: Mallard Bay, 642 st on June 6; east of the Homer Spit/Mud Bay, 254 st on May 14; Glacier Spit/Halibut Cove, 637 st on June 1; and Tutka Bay, 340 st on June 6. A chartered seine vessel opportunistically collected nearly 500 herring for AWL analysis during a single set in the Southern District this season near Glacier Spit. These Glacier Spit samples were dominated by age-6, -7, and -8 fish (32%, 35%, and 11%, respectively).

### **Outer and Eastern Districts**

No aerial surveys of the Outer and Eastern Districts were conducted during the 2000 season. The size of the area and the characteristically poor weather in the Gulf of Alaska, which precludes surveys on a regular basis, makes aerial biomass estimation in these districts impractical. However, incidental observations of herring in June during the early part of the salmon season confirmed the presence of herring in these two districts again this year. Additionally, two small, informal samples of herring from two separate schools observed aurally in Day Harbor (Eastern District, late June) and Port Dick (Outer District, early July) were obtained by handline jigging. Although no scales were collected for age composition analysis, size of all fish caught suggested that they were age-2 juveniles.

## **COMMERCIAL FISHERY**

### **Kamishak Bay District**

Spotter pilots and fishermen first located and fished the Kamishak Bay District herring populations in 1973, but after several years of significant commercial harvests in the late 1970's herring abundance severely declined and the district was completely closed beginning in 1980. Herring stocks quickly rebounded in response to the closure. Due in large part to an

ss, the fishery was reopened in 1985. Since then, the  
a 10% to 20% exploitation rate mandated by the Alaska

d to a level where intensive regulatory management was  
he harvest and maintain the guideline harvest level while  
strategy during the 1990's in the Kamishak Bay District  
2,300 tons, or just under 40% of the record high catch of  
2 and 33).

District was closed to commercial herring fishing for the  
e only fish harvested from the district were the samples  
e research/sampling charter in late April and early May.  
fish were dominated by herring age-3, -4 and -7 (31%,  
d in descending proportional order by age-6, -5, and -8

District sac roe fishery was changed in 1989 to allow for  
the purposes of obtaining age, weight, length, and roe  
had not been fished in the Southern District since 1979,  
area-wide closure. Only one other fishery has occurred  
g averaging 8.9% roe recovery were harvested by 10  
Mallard Bay during 1989 (Appendix Table 32). During  
undance over recent seasons, Southern District surveys  
document sufficient quantities of herring to warrant an



## Outer and Eastern Districts

During the early years of sac roe herring fishing in LCI, seining within the Outer and Eastern Districts primarily occurred in Resurrection Bay. Following a period of suspected over-exploitation, herring stocks throughout LCI generally declined after 1973. Concern over this decline prompted the Alaska Board of Fish and Game in 1974 to establish a 4,000 st quota for all of LCI, with the Outer and Eastern Districts each allocated 1,000 st. The quotas were never utilized since stock abundance continued to decline, and the Outer and Eastern Districts were closed to fishing from 1975 through 1984.

In 1985, the sac roe fishery was allowed to resume in the Outer and Eastern Districts on a very conservative basis, even though no noticeable change in spawning biomass had been observed. Because of the stocks' reduced abundance and extreme vulnerability to fishing, guideline harvest levels were set at 150 to 200 st for each of the four fishing areas created within these two districts. Fishing effort in 1985 was minimal and the majority of the harvest (216 st; Appendix Table 32) once again occurred in Resurrection Bay.

Only limited and sporadic harvests have occurred in these two districts since 1985, with the majority of both the herring harvest and the observed biomass comprised of fish age-4 and younger. Unlike the Southern and Kamishak Bay Districts, samples from the Outer and Eastern Districts have contained up to 14% age-2 (sexually immature) herring. Although sampling has been very limited in recent years, no discernible shift to older age herring has ever been observed, suggesting the possibility that the Outer and Eastern Districts may be feeding and rearing grounds for juvenile fish of Prince William Sound origin.

Despite significant opportunity for exploratory fishing on a daily basis in the Outer and Eastern Districts during 1991 and 1992, the predominance of juvenile herring and the history of marginally acceptable roe recoveries from fish caught in these areas has contributed to a lack of interest by fishermen and processors. These conditions prevailed during the years 1993 through

l Eastern Districts were not opened to purse seining in any

## ND MANAGEMENT STRATEGY FOR 2001

declining in Kamishak Bay during recent years, that trend  
nning to slowly increase. Current projection of stock size  
h exceeds the regulatory threshold of 8,000 tons for which  
ever, an estimated 61% of the predicted return in 2001 will  
ger, with the single age-4 year class projected to make up  
, Figure 16). Since the Kamishak Bay District Herring  
ent to limit the harvest of fish age-5 and younger, the sac  
ct will remain closed for the 2001 season. Although some  
wning population occurred in 2000, the magnitude of this  
the 1993 cohort appeared relatively strong at 13% of the  
e only one-quarter the size of the very strong 1988 cohort  
throughout most of the 1990's. The resource, and hence  
by protecting the remaining spawning population in order

ate June during 1999 was thought to be an indication that  
ss. However, the solitary appearance of this large,  
e, arriving well after aerial surveys for herring typically  
ish were of non-Kamishak origin. The staff was hopeful  
00 could be confirmed through late season sampling. As  
g charter occurred and, therefore, definitive confirmation  
esent in Kamishak Bay during mid to late May could not

be made. Additionally, the age-structured model used to project the 2001 herring biomass was not able to incorporate any late season sampling data, increasing the uncertainty in the forecast. Nevertheless, all other information collected during 2000 suggests that these young fish were likely of Kamishak Bay origin and were present during the latter portion of this year's spawning migration

Without a commercial fishery in 2001, the Department's ability to collect age composition information will be greatly reduced. The Department expects to conduct test fishing with a chartered commercial seine vessel throughout the duration of the 2001 run, with funding available for both an early and a late season charter. The Department will also attempt to conduct comprehensive aerial surveys throughout the spawning season, from mid-April to early June, as conditions permit.

#### **Other Districts**

Based on recent trends in herring abundance and age structure in the Southern, Outer, and Eastern Districts of LCI, no commercial herring harvests are anticipated in these areas during 2001. Sufficient quantities of herring in the Southern District must be documented before a commercial opening is considered. Monitoring of the Southern District herring stocks will occur as in the past through the use of aerial surveys in conjunction with test fishing samples collected on an opportunistic basis. The Outer and Eastern Districts will only be allowed to open if adequate evidence suggesting commercial quantities of adult herring becomes available. Any potential fishery in these districts will be considered "exploratory" in nature and will be managed accordingly.

### **COMMERCIAL AQUATIC PLANT HARVEST**

A very small "Bull Kelp" (*Nereocystis leutkeana*) fishery has occurred in LCI during recent years for the stated purpose of manufacturing specialty kelp products with limited market

seasons of minor harvests, each conducted under terms of authority of state regulations regarding aquatic plants. Each harvest in LCI were submitted to the Department for approval or harvest resulted. Previous harvest amounts totaled 500 pounds in 1998.

LCI will likely fall under guidelines set forth in the DFP Policy (DFP). Although only a draft at this time, the Alaska Board of Fisheries (BOF) at their October meeting, in general, the development of new commercial permits will no longer be allowed. However, there are provisions that may issue an experimental permit for commercial fisheries, such as the Bull River. These are characterized as dependent on limited, local markets and tend to attract little interest. They are often used for special foods and limited income in remote areas. The DFP would likely require closure of many of these fisheries given the low levels of harvest and lack of potential

For existing fisheries, the Department currently has no funding for aquatic plant fishery in LCI. There is no guarantee that an permit will be issued for any proposed harvest if market demand is subsequently desired. Because of limited time and resources requiring strict accounting of harvest periods, no permit. Until funds become available for surveying harvest monitoring and examining effects of the harvest on the environment in Kachemak Bay must be regulated on a small-scale

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Table 1. Commercial, hatchery, and derby salmon catches in numbers of fish by species, district, and gear type, Lower Cook Inlet, 2000.

<b>District</b>						
Gear Type	Chinook	Sockeye	Coho	Pink	Chum	Total
<b>Southern</b>						
Commercial:						
Set gillnet	1,019	26,503	621	21,845	5,214	55,202
Purse seine	165	78,072	147	4,515	125	83,024
Hatchery:						
Purse seine		18,999		1,043,705	1	1,062,705
<b>Total</b>	<b>1,184</b>	<b>123,574</b>	<b>768</b>	<b>1,070,065</b>	<b>5,340</b>	<b>1,200,931</b>
<b>Outer</b>						
Commercial:						
Purse seine	2	21,623	20	306,555	302	328,502
<b>Eastern</b>						
Commercial:						
Purse seine		19,193	332	4,099	1,273	24,897
Hatchery:						
Weir		21,713	6,019			27,732
Beach seine		9,143	72	1		9,216
Purse seine	1	14,050	2	373	267	14,693
Derby <sup>a</sup> :						
Hook & Line			1,689			1,689
<b>Total</b>	<b>1</b>	<b>64,099</b>	<b>8,114</b>	<b>4,473</b>	<b>1,540</b>	<b>78,227</b>
<b>Kamishak</b>						
Commercial:						
Purse seine	1	10,245	7	6,173	66,069	82,495
Hatchery:						
Purse seine		21,391		41	3	17,986
<b>Total</b>	<b>1</b>	<b>31,636</b>	<b>7</b>	<b>6,214</b>	<b>66,072</b>	<b>103,930</b>
LCI Total	1,188	240,932	8,909	1,387,307	73,254	1,711,590
Percent	0.07%	14.08%	0.52%	81.05%	4.28%	100.00%
1980-99						
Average	1,331	238,807	14,656	1,216,296	79,865	1,550,955

<sup>a</sup> Derby catches are fish entered into the Seward Silver Salmon Derby that are subsequently sold to a commercial processor, therefore these catches are considered part of the LCI "commercial harvest".

on catches, and escapements in numbers of fish by  
let, 2000.

Catch	Escapement <sup>a</sup>	Total Run
584		584
70		70
23		23
175		175
87		87
241		241
4		4
<b>1,184</b>		<b>1,184</b>
<u>2</u>		<u>2</u>
<b>2</b>		<b>2</b>
<u>1</u>		<u>1</u>
<b>1</b>		<b>1</b>
<u>1</u>		<u>1</u>
<b>1</b>		<b>1</b>
<b>1,188</b>		<b>1,188</b>

very limited; no escapement surveys are conducted.



Table 3. Commercial sockeye salmon catches (including hatchery cost recovery) and escapements in numbers of fish by subdistrict, Lower Cook Inlet, 2000.

Subdistrict/System	Catch	Escapement <sup>a</sup>	Total Run
<b>SOUTHERN DISTRICT</b>			
Humpy Creek		30	30
Halibut Cove	24,301		24,301
China Poot Bay			
Common Property Fishery	24,686		
Hatchery Cost Recovery	13,738		
China Poot Creek		256 <sup>b</sup>	
Total Run			38,680
Neptune Bay			
Common Property Fishery	35,513		
Hatchery Cost Recovery	4,365		
"Oxbow" Creek		30	
Total Run			39,908
Tutka/Kasitsna Bays & Tutka Creek	7,498 <sup>c</sup>	80	7,578
Barabara Creek	4,948		4,948
Seldovia Bay	6,388	4	6,392
Port Graham	1,153	1	1,154
English Bay	984		
English Bay Lakes		11,237 <sup>d</sup>	
Hatchery Broodstock		1,376	
Total Run			13,597
<b>SOUTHERN DISTRICT TOTAL</b>	<b>123,574</b>	<b>13,014</b>	<b>136,588</b>
<b>OUTER DISTRICT</b>			
Port Dick/Head End Creek	5	2	7
East Arm Nuka Bay (McCarty Fiord)	21,618		
Delight Lake		12,290	
Desire Lake		4,000	
Delusion Lake		2,090	
Total Run			39,998
<b>OUTER DISTRICT TOTAL</b>	<b>21,623</b>	<b>18,382</b>	<b>40,005</b>
<b>EASTERN DISTRICT</b>			
Aialik Bay & Aialik Lake	48	4,250	4,298
Resurrection Bay North			
Common Property Fishery	19,145		
Hatchery Cost Recovery	31,216		
Hatchery Discards/Donations	13,690		
Bear Lake Escapement		8,239 <sup>d</sup>	
Hatchery Brood Stock		3,665 <sup>e</sup>	
Clear Creek		10	
Total Run			75,965
<b>EASTERN DISTRICT TOTAL</b>	<b>64,099</b>	<b>16,164</b>	<b>80,263</b>

-continued-



Table 4. Commercial coho salmon catches (including hatchery cost recovery and sport derby sold to commercial processors) and escapements in numbers of fish by subdistrict, Lower Cook Inlet, 2000.

Subdistrict/System	Catch	Escapement <sup>a</sup>	Total Run
<b>SOUTHERN DISTRICT</b>			
Northshore Subd./Clearwater Slough		630 <sup>a</sup>	630
Halibut Cove	72		72
China Poot Bay	17		17
Neptune Bay	99		99
Tutka/Kasitsna Bays	348		348
Barabara Creek	129		129
Seldovia Bay	103		103
<b>SOUTHERN DISTRICT TOTAL</b>	<b>768</b>	<b>630</b>	<b>1,398</b>
<b>OUTER DISTRICT</b>			
Port Dick	4		4
East Arm Nuka Bay (McCarty Fiord)	16		16
<b>OUTER DISTRICT TOTAL</b>	<b>20</b>		<b>20</b>
<b>EASTERN DISTRICT</b>			
Aialik Bay	332		332
Resurrection Bay North			
Hatchery Harvest	241		
Hatchery Discards/Donations	5,852		
Sport Derby	1,689		
Bear Lake (weir counts)		431	
Hatchery Brood Stock		721	
Total Run			8,934
<b>EASTERN DISTRICT TOTAL</b>	<b>8,114</b>	<b>1,152</b>	<b>9,266</b>
<b>KAMISHAK BAY DISTRICT</b>			
Douglas River	5		5
Kamishak River	2		2
<b>KAMISHAK BAY DISTRICT TOTAL</b>	<b>7</b>		<b>7</b>
<b>TOTAL LOWER COOK INLET</b>	<b>8,909</b>	<b>1,782</b>	<b>10,691</b>

<sup>a</sup> Coho escapement estimates in Lower Cook Inlet are very limited: three escapement surveys were conducted during 2000, number represents unexpanded peak aerial live count.

Table 5. Commercial pink salmon catches (including hatchery cost recovery) and escapements in numbers of fish by subdistrict, Lower Cook Inlet, 2000.

Subdistrict/System	Catch	Escapement <sup>a</sup>	Total Run
<b>SOUTHERN DISTRICT</b>			
Humpy Creek		22,436	22,436
Halibut Cove	514		514
China Poot Bay/Creek	701	7,497	8,198
Neptune Bay	3,272		3,272
Tutka/Kasitsna Bays			
Common Property Fishery	8,580		
Hatchery Cost Recovery	1,043,705		
Hatchery Brood Stock		179,970	
Tutka Lagoon Creek		19,048	
Tutka Head End Creek		3,379	
Total Run			1,254,682
Barabara Creek	3,094	5,568	8,662
Seldovia Bay & River	10,199	53,461	63,660
Port Graham			
Hatchery Brood Stock		38,486	
Port Graham River		15,590	
Total Run			54,076
<b>SOUTHERN DISTRICT TOTAL</b>	<b>1,070,065</b>	<b>345,435</b>	<b>1,415,500</b>
<b>OUTER DISTRICT</b>			
Dogfish Bay		11,057	11,057
Port Chatham		16,652	16,652
Chugach Bay		6,261	6,261
Windy Bay			
Windy Right Creek		22,964	
Windy Left Creek		20,073	
Total Run			43,037
Rocky Bay			
Scurvy Creek		1,083	
Rocky River		131,651	
Total Run			132,734
Port Dick	306,267		
Port Dick (head end) Creek		122,911 <sup>b</sup>	
High Tech Creek		976	
Well Flagged Creek		463	
Slide Creek		55,637	
Middle Creek		12,263	
Island Creek		70,845	
			569,362

-continued-

Table 5. (page 2 of 3)

Subdistrict/System	Catch	Escapement <sup>a</sup>	Total Run
OUTER DISTRICT (cont'd)			
Taylor Bay		38,100	38,100
Nuka Island			
Tonsina Bay		657	
Petrof River		1,543	
South Nuka Island Creek		13,572	
Mike's Bay		872	
Home Cove		5,940	
Total Run			22,584
East Arm Nuka Bay (McCarty Fiord)	288		
Delight Lake		100	
Desire Lake		19,083	
Delusion Lake		1,053	
James Lagoon		3,897	
Total Run			24,421
<b>OUTER DISTRICT TOTAL</b>	<b>306,555</b>	<b>557,653</b>	<b>864,208</b>
EASTERN DISTRICT			
Aialik Bay	4,099		4,099
Resurrection Bay North	374		
Bear/Salmon Creeks		35,640	
Clear Creek		2,012	
Sawmill Creek		261	
Spring Creek		600	
Tonsina Creek		6,587	
Humpy Cove		1,691	
Thumb Cove (Likes Creek)		8,503	
Total Run			55,668
<b>EASTERN DISTRICT TOTAL</b>	<b>4,473</b>	<b>55,294</b>	<b>59,767</b>
KAMISHAK BAY DISTRICT			
Inisksin Bay			
North Head Creek		791	
Sugarloaf Creek		1,194	
Total Run			1,985
Cottonwood Bay/Creek		1,200	1,200

- continued -

Table 5. (page 3 of 3)

Subdistrict/System	Catch	Escapement <sup>a</sup>	Total Run
KAMISHAK BAY DISTRICT (cont'd)			
Ursus Cove			
Brown's Peak Creek		9,765	
Ursus Lagoon Righthand Cr.		100	
Ursus Lagoon Creek		1,086	
Ursus Head Creek		960	
Total Run			11,911
Rocky Cove/Sunday Creek		39,783	39,783
Kirschner Lake	1,355 <sup>c</sup>		1,355
Bruin Bay	4,097		
Bruin Bay River		176,694	
Bruin Lake Creek		431	
Total Run			181,222
McNeil Cove/McNeil River		3,846	3,846
Kamishak Rivers/Reef	582		
Big Kamishak River		14,900	
Little Kamishak River		13,000	
Strike Creek		464	
Total Run			28,946
Douglas Reef/Silver Beach	180		
Douglas Reef		929	
Douglas Beach		20	
			1,129
<b>KAMISHAK BAY DISTRICT TOTAL</b>	<b>6,214</b>	<b>265,163</b>	<b>271,377</b>
<b>TOTAL LOWER COOK INLET</b>	<b>1,387,307</b>	<b>1,223,545</b>	<b>2,610,852</b>

<sup>a</sup> Escapement estimates are derived from periodic ground or aerial surveys with stream life factors applied.

<sup>b</sup> Port Dick Creek counts derived from aerial data in 2000. Other methods also used to generate escapement estimates included ground surveys (91,795) and weir counts (142,450).

<sup>c</sup> Kirschner Lake pinks include 1,314 taken during common property fishing and 41 taken during hatchery sockeye cost recovery harvests.

Table 6. Commercial chum salmon catches and escapements in numbers of fish by subdistrict, Lower Cook Inlet, 2000.

Subdistrict/System	Catch	Escapement <sup>a</sup>	Total Run
<b>SOUTHERN DISTRICT</b>			
Humpy Creek		695	695
Halibut Cove	91		91
China Poot Bay	33		33
Neptune Bay	49		49
Tutka Bay/Tutka Head End Creek	1,808	219	2,027
Barabara Creek	1,219		1,219
Seldovia Bay & River	2,136	7,120	9,256
Port Graham & River		11,381	11,381
English Bay	4		4
<b>SOUTHERN DISTRICT TOTAL</b>	<b>5,340</b>	<b>19,415</b>	<b>24,755</b>
<b>OUTER DISTRICT</b>			
Dogfish Bay		19,645	19,645
Port Chatham		2,039	2,039
Windy Bay			
Windy Right Creek		378	
Windy Left Creek		2,580	
Total Run			2,958
Rocky Bay & River		4,177	4,177
Port Dick	76		
Port Dick (head end) Creek		3,395	
High Tech Creek		32	
Well Flagged Creek		23	
Slide Creek		2,072	
Middle Creek		12,053	
Island Creek		1,832	
Total Run			19,483
Taylor Bay		134	134
Nuka Island/Petrof River		501	501
East Arm Nuka Bay/James Lagoon	226	2,150	2,376
<b>OUTER DISTRICT TOTAL</b>	<b>302</b>	<b>51,011</b>	<b>51,313</b>
<b>EASTERN DISTRICT</b>			
Aialik Bay	5		5
Resurrection Bay North	1,535		
Clear Creek		286	
Sawmill Creek		494	

-continued-

Table 6. (page 2 of 2)

Subdistrict/System	Catch	Escapement <sup>a</sup>	Total Run
Resurrection Bay North (cont'd)			
Spring Creek		1,473	
Thumb Cove		1,336	
Tonsina Creek		4,677	
Total Run			9,801
<b>EASTERN DISTRICT TOTAL</b>	<b>1,540</b>	<b>8,266</b>	<b>9,806</b>
<b>KAMISHAK BAY DISTRICT</b>			
Iniskin Bay			
Iniskin River		23,601	
Sugarloaf Creek		840	
North Head Creek		2,010	
Total Run			26,451
Cottonwood Bay & Creek		24,100	24,100
Ursus Cove			
Brown's Peak Creek		3,199	
Ursus Lagoon Right Creek		27,552	
Ursus Cove Lagoon Creek		14,135	
Ursus Head Creek		1,473	
Total Run			46,359
Rocky Cove/Sunday Creek		7,297	7,297
Kirschner Lake	609		609
Bruin Bay & River	1,838	13,621	15,459
McNeil River		18,607	18,607
Kamishak River/Reef	43,695		
Big Kamishak River		45,314	
Little Kamishak River		26,923	
Strike Creek		3,224	
Total Run			119,156
Douglas River/Silver Beach	19,930		
Douglas Beach Creek		5,643	
Douglas Reef Creek		200	
Total Run			25,773
<b>KAMISHAK BAY DISTRICT TOTAL</b>	<b>66,072</b>	<b>217,739</b>	<b>283,811</b>
<b>TOTAL LOWER COOK INLET</b>	<b>73,254</b>	<b>296,431</b>	<b>369,685</b>

<sup>a</sup> Escapement estimates are derived from periodic ground or aerial surveys with stream life factors applied.



Table 7. Exvessel value<sup>a</sup> of the commercial salmon catch in numbers of dollars by species, gear type, and harvest type, Lower Cook Inlet, 2000.

	Chinook	Sockeye	Coho	Pink	Chum	Total
<b>COMMON PROPERTY - PURSE SEINE</b>						
No. of Fish	168	129,133	506	321,342	67,769	518,918
Pounds	1,230	719,361	4,918	1,025,117	633,953	2,384,579
Price/lb.	\$0.75	\$0.98	\$0.45	\$0.09	\$0.29	
Value	\$923	\$704,974	\$2,213	\$92,261	\$183,846	\$984,217
<b>COMMON PROPERTY - SET GILLNET</b>						
No. of Fish	1,019	26,503	621	21,845	5,214	54,323
Pounds	16,215	164,928	4,515	79,424	42,535	298,197
Price/lb.	\$1.94	\$1.01	\$0.54	\$0.14	\$0.18	
Value	\$31,457	\$166,577	\$2,438	\$2,937	\$7,656	\$211,065
<b>HATCHERY - PURSE SEINE, BEACH SEINE, &amp; WEIR</b>						
No. of Fish	1	85,296	6,093	1,044,120	271	1,135,781
Pounds	2	391,980	41,921	2,408,526	2,146	2,844,575
Price/lb.	\$0.00	\$0.61	\$0.00	\$0.14	\$0.22	
Value	\$0	\$240,784	\$0	\$335,680	\$472	\$576,936
<b>SPORT FISHING DERBY<sup>b</sup> - HOOK &amp; LINE</b>						
No. of Fish			1,689			1,689
Pounds			21,959			21,959
Price/lb.			\$0.65			
Value			\$14,273			\$14,273
<b>TOTAL ALL GEARS</b>						
No. of Fish	1,188	240,932	8,909	1,387,307	73,254	1,711,590
Pounds	17,447	1,276,269	73,313	3,513,067	678,634	5,558,730
Price/lb.	\$1.86	\$0.87	\$0.60 <sup>c</sup>	\$0.12	\$0.28	
Value	\$32,380	\$1,112,335	\$18,924 <sup>c</sup>	\$430,878	\$191,974	\$1,786,491

<sup>a</sup> Exvessel value is calculated from average prices, which are determined only by fish ticket information and may not reflect retroactive or postseason adjustments.

<sup>b</sup> Fish entered into the Seward Silver Salmon Derby are subsequently sold to a commercial processor and are therefore considered "commercial harvest".

<sup>c</sup> Average price and value for cohos include only those fish actually sold and does not include hatchery fish that were donated or discarded.

Table 8. Emergency orders issued for the commercial, personal use, and subsistence salmon and herring fisheries in Lower Cook Inlet, 2000.

Number/ Issue Date	DESCRIPTION
2-F-H-001-00 May 11	Opens those waters of Resurrection Bay in the Eastern District enclosed by a line from Aialik Cape south to a point one mile due south of Aialik Cape, then northeast to a point one mile due south of Cape Resurrection, then north to Cape Resurrection, to commercial salmon seining on a weekly schedule of five days per week, from Monday 6:00 a.m. until Friday 10:00 p.m., effective Monday, May 15, 2000, until further notice. All waters along the west shore of Resurrection Bay west of a line from the old military dock pilings north of Caines Head to a regulatory marker near the Seward Airport will remain closed to seining.
2-F-H-002-00 May 26	Establishes a seven-day-per-week fishing schedule in the Kamishak Bay District commercial salmon seine fishery, which opens by regulation on June 1, 2000. The Chenik Subdistrict within the Kamishak Bay District will remain closed to commercial salmon seining until further notice based on the provisions of this emergency order.
2-F-H-003-00 June 9	Closes waters of Resurrection Bay in the Eastern District to commercial salmon seining effective 10:00 p.m. Friday, June 9, 2000, until further notice.
2-F-H-004-00 June 14	Designates and establishes Special Harvest Areas (SHA's) for Cook Inlet Aquaculture Association (CIAA) in Bruin Bay and China Poot Subdistricts of the Lower Cook Inlet (LCI) management area. It also designates and establishes an English Bay SHA for the Port Graham Hatchery Corporation (PGHC) in the English Bay Section of Port Graham Subdistrict, located in the Southern District of the LCI management area. This emergency order closes the Kirschner and Bruin Lakes SHA's to the common property salmon seine fishery, while concurrently opening waters of the Kirschner Lake and Bruin Lake SHA's in the Kamishak Bay District, and the China Poot and Hazel Lake SHA's in the Southern District, to the harvest of salmon seven days per week by authorized agents of CIAA effective at 6:00 a.m. Monday, June 19, 2000, until further notice. The English Bay SHA will remain closed to hatchery fishing until the escapement goal of 15,000 sockeyes into English Bay Lakes can be projected and the sockeye salmon subsistence needs of Nanwalek and Port Graham villagers are met.
This emergency order also opens portions of the China Poot, Tutka Bay, and Halibut Cove Subdistricts, all within the Southern District, to commercial salmon seining five days per week, from Monday 6:00 a.m. until Saturday 6:00 a.m., effective 6:00 a.m. Monday, June 19, 2000, until further notice. In the China Poot Subdistrict, commercial seining shall be allowed five days per week only in	

-continued-

Table 8. (page 2 of 7)

Number/ Issue Date	DESCRIPTION
2-F-H-004-00 June 14 (continued)	those waters outside (offshore) of a line beginning at a marker on the west shore of Neptune Bay at approximately 59° 32.83' N. latitude, 151° 24.95' W. longitude, then to Lancashire Rock, then to the navigational light on Gull Island, then to Moosehead Point, effective June 19. In the Halibut Cove Subdistrict, seining shall be allowed only in waters outside of Halibut Cove Lagoon beginning June 19 on a five days per week basis. In the Tutka Bay Subdistrict, commercial seining is restricted to those waters seaward of a line extending from the "rock quarry" on the north side of the bay at approximately 59° 30.23' N. latitude, 151° 28.23' W. longitude, to the Tutka Bay Lodge on the south side of the bay at approximately 59° 28.45' N. latitude, 151° 28.95' W. longitude, five days per week effective 6:00 a.m. Monday, June 19, 2000.
2-F-H-005-00 June 16	Closes the Port Graham Subdistrict, including the English Bay Section, in the Southern District to commercial salmon set gillnet fishing, effective at 6:00 a.m. Monday, June 19, 2000, until further notice.
2-F-H-006-00 June 21	Opens those waters of Resurrection Bay in the Eastern District enclosed by a line from Aialik Cape south to a point one mile due south of Aialik Cape, then northeast to a point one mile due south of Cape Resurrection, then north to Cape Resurrection, to commercial salmon seining on a weekly schedule of five days per week, from Monday 6:00 a.m. until Friday 10:00 p.m., effective at 6:00 a.m. Thursday, June 22, 2000, until further notice. All waters along the west shore of Resurrection Bay west of a line from the old military dock pilings north of Caines Head to a regulatory marker near the Seward Airport will remain closed to seining.
2-F-H-007-00 June 22	Closes waters of Resurrection Bay in the Eastern District to commercial salmon seining effective at 12:00 midnight Thursday, June 22, 2000, until further notice.
2-F-H-008-00 June 22	Designates and establishes a Special Harvest Area (SHA) for the Cook Inlet Aquaculture Association (CIAA) in Tutka Bay Subdistrict within the Southern District of Lower Cook Inlet. The Tutka Bay SHA consists of all marine waters of Tutka Bay Subdistrict southeast of the Homer Electric Association powerline crossing, including waters of Tutka Lagoon. In addition, this emergency order opens the Tutka Bay SHA to the harvest and sale of salmon seven days per week by authorized agents of CIAA, effective at 6:00 a.m. Monday, June 26, 2000, until further notice. Revenue obtained from the sale of these fish will be used for recovery of operational expenses associated with the Tutka Lagoon Hatchery salmon enhancement programs in Lower Cook Inlet.

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Table 8. (page 3 of 7)

Number/ Issue Date	DESCRIPTION
2-F-H-008-00 June 22 (continued)	<p>The commercial purse seine fishery in the Tutka Bay Subdistrict is currently restricted to those waters seaward of a line extending from the "rock quarry" on the north side of Tutka Bay at approximately 59° 30.23' N. latitude, 151° 28.23' W. longitude, to the Tutka Bay Lodge on the south side of the bay at approximately 59° 28.95' N. latitude, 151° 28.45' W. longitude, on a five day per week basis. Waters of Tutka Bay between the HEA powerlines and the above-described line remain closed to all seine fishing.</p> <p>This emergency order also designates and establishes a SHA for the Port Graham Hatchery Corporation (PGHC) in the Port Graham Subdistrict within the Southern District of Lower Cook Inlet. The Port Graham SHA consists of all marine waters of the Port Graham Subdistrict east of 151° 53.08' W. longitude, and south and west of a line from the southernmost tip of Passage Island to the Coast Guard navigational buoy at approximately 59° 21.45' N. latitude, 151° 50.05' W. longitude, then southeast to a point on the mainland at approximately 59° 20.83' N. latitude, 151° 48.53' W. longitude. This area is located along the south shore of Port Graham from Passage Island to (and including) Duncan Slough.</p>
2-F-H-009-00 June 28	<p>Closes waters of McNeil River and Paint River Subdistricts in the Kamishak Bay District to commercial salmon seining effective at 6:00 a.m. Friday, June 30, 2000, until further notice.</p>
2-F-H-010-00 June 30	<p>Opens those waters of East Nuka Subdistrict in the Outer District south of the entrance to James Lagoon at approximately 59° 33.50' N. latitude to commercial salmon seining five days per week, from Monday 6:00 a.m. until Saturday 6:00 a.m., effective at 6:00 a.m. Monday, July 3, 2000, until further notice. The closed waters markers at the mouth of Delight Lake Creek <b>WILL NOT BE</b> in effect for this opening, and fishing will be allowed up to the stream mouth. In addition, seining will be allowed inside waters of McCarty Lagoon near Delight Lake.</p> <p>In addition, this emergency order extends fishing time for commercial set gillnets in Halibut Cove Subdistrict of the Southern District to five days per week, from 6:00 a.m. Monday until 6:00 a.m. Saturday, effective at 6:00 a.m. Wednesday, July 5, 2000, until further notice.</p>
2-F-H-011-00 July 3	<p>Designates and establishes a Special Harvest Areas (SHA) for Cook Inlet Aquaculture Association (CIAA) in the Resurrection Bay North Section of the Resurrection Bay Subdistrict in the Eastern District of the Lower Cook Inlet (LCI) management area. This emergency order also opens waters of the</p>

-continued-

Table 8. (page 4 of 7)

Number/ Issue Date	DESCRIPTION
2-F-H-011-00 July 3 (continued)	Resurrection Bay SHA to the harvest of salmon seven days per week by authorized agents of CIAA effective at 6:00 a.m. Wednesday, July 5, 2000, until further notice.
2-F-H-012-00 July 7	Restricts commercial salmon seining in Tutka Bay Subdistrict within the Southern District to those waters seaward (northwest) of a line beginning at the "rock quarry" on the north side of the bay at approximately 59° 30.23' N. latitude, 151° 28.23' W. longitude, to a point on the west shore of the entrance to Little Tutka Bay at approximately 59° 28.73' N. latitude, 151° 30.37' W. longitude, effective at 6:00 a.m. Monday, July 10, 2000. The weekly fishing period for waters of Tutka Bay Subdistrict, already established at five days per week (see <b>LCI Emergency Order #2-F-H-04-00</b> ), is not altered and remains the same.
2-F-H-013-00 July 20	Closes waters of the China Poot and Hazel Lakes Special Harvest Areas (see <b>LCI E.O. #2-F-H-004-00</b> ) in the Southern District to salmon hatchery cost recovery harvest by Cook Inlet Aquaculture Association effective immediately. In addition, this emergency order opens waters of China Poot Subdistrict, including both the China Poot and Hazel Lake Sections, to commercial salmon seining <b>west</b> (or offshore) of the regulatory markers located near the HEA power lines in China Poot Bay on a <b>seven-day-per-week basis</b> , effective at 6:00 a.m. Friday, July 21, until further notice. Waters of China Poot Bay <b>east</b> (or inshore) of these markers will open to commercial seining <b>five days per week</b> , from Monday 6:00 a.m. until Saturday 6:00 a.m., also effective at 6:00 a.m. Friday, July 21, until further notice. The regulatory markers designating the Dungeness crab sanctuary in the north arm of China Poot Bay are still in effect for these openings. At China Poot Creek, the regulatory markers near the creek mouth will be in effect during the Monday through Saturday opening. At Neptune Bay, no markers will be in effect and fishing is allowed up to the Wosnesenski River mouth.
2-F-H-014-00 July 23	Closes the Kirschner and Bruin Lakes Special Harvest Areas (SHA's; see <b>LCI Emergency Order #2-F-H-004-00</b> ) to the harvest of salmon by authorized agents of Cook Inlet Aquaculture Association (CIAA) effective at 6:00 p.m., Sunday, July 23, 2000, until further notice.  In addition, this emergency order implements the following actions in the commercial seine fishery in Kamishak Bay District, all effective at 12:00 noon Monday, July 24, 2000: 1) opens all waters of Bruin Bay Subdistrict to commercial salmon seining on a schedule of two 48-hour periods per week, from Monday 6:00 a.m. until Wednesday 6:00 a.m. and from Thursday 6:00

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DESCRIPTION

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00 a.m.; 2) restricts the weekly fishing periods in waters of Douglas River Subdistricts to the same aforementioned hour periods per week; and 3) closes waters of Rocky Cottonwood Bay, and Iniskin Bay Subdistricts. Waters of , and Paint River Subdistricts, which were closed earlier **LCI Emergency Orders #2-F-H-002** and **-009-00**), remain

Bruin Bay Section of Bruin Bay Subdistrict in the Kamishak District to commercial salmon seining effective at 6:00 p.m. Thursday, July 6, 2000, until further notice. Waters closed by this emergency order are also statistical reporting area 249-70.

South Section of Port Dick Subdistrict, described as area 232-07 *only*, in the Outer District to commercial salmon seining on a schedule of two forty-hour periods per week, from Monday 6:00 a.m. until Thursday 6:00 p.m. and from Thursday 6:00 a.m. until Friday 10:00 a.m. Monday, August 7, 2000, until further notice.

in Special Harvest Area (see **LCI Emergency Order #2-F-H-002**) to harvest of salmon seven days per week by authorized agents of Port Graham Hatchery Corporation (PGHC), effective at 12:00 noon Monday, August 14, 2000, until further notice. Pink salmon harvested during this period for hatchery brood stock.

Bruin Bay Subdistrict in the Kamishak Bay District to commercial salmon seining seven days per week, effective at 12:00 noon Monday, August 14, 2000, until further notice. Waters opened by this emergency order are defined as statistical reporting areas 249-70 and 249-75.

Emergency order opens waters of Cottonwood and Iniskin Bay Subdistricts in the Kamishak Bay District to commercial salmon seining on a schedule of four periods per week, from Monday 6:00 a.m. until Thursday 6:00 p.m. and from Thursday 6:00 a.m. until Saturday 6:00 a.m., Monday, August 14, 2000, until further notice.

in Special Harvest Area (see **LCI Emergency Order #2-F-H-002**) to harvest of salmon by authorized agents of Port Graham Hatchery Corporation (PGHC), effective at 9:00 a.m. Wednesday, August 16, 2000, until further notice.

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Table 8. (page 6 of 7)

Number/ Issue Date	DESCRIPTION
2-F-H-020-00 August 9	<p>Opens the following waters in the Outer District to commercial salmon seining on a schedule of two 40-hour weekly fishing periods, from Monday 6:00 a.m. until Tuesday 10:00 p.m. and from Thursday 6:00 a.m. until Friday 10:00 p.m., effective at 6:00 a.m. Thursday, August 10, 2000, until further notice: waters of Port Chatham Subdistrict; waters of both the Outer and Taylor Bay Sections of Port Dick Subdistrict (or statistical reporting areas 232-06 and 232-08); and those waters of Nuka Island Subdistrict south of the latitude of the southern entrance to Westdahl Cove at approximately 59° 19.00' N. latitude and east of the longitude of the entrance to Tonsina Bay at approximately 150° 52.87' W. longitude. In Port Dick Subdistrict, waters of the North Section (or statistical reporting area 232-09) remain closed to fishing. The regulatory markers at all locations <b>WILL BE</b> in effect for these openings.</p> <p>In addition, this emergency order closes waters of East Nuka Subdistrict to commercial salmon seining, also effective at 6:00 a.m. Thursday, August 10, 2000, until further notice.</p>
2-F-H-021-00 August 10	<p>Opens the Port Graham Special Harvest Area (see <b>LCI Emergency Order #2-F-H-008-00</b>) to the harvest of salmon seven days per week by authorized agents of Port Graham Hatchery Corporation (PGHC), effective at 1:00 p.m. Thursday, August 10, 2000, until further notice. Pink salmon harvested during this opening will be utilized for hatchery brood stock.</p>
2-F-H-022-00 August 14	<p>Delays the opening of the Southern District (Kachemak Bay) personal use set gillnet fishery for coho salmon until 6:00 a.m. Thursday, August 17, 2000.</p>
2-F-H-023-00 August 17	<p>Opens those waters of Ursus Cove Subdistrict in the Kamishak Bay District between 59° 29' N. latitude and 59° 32.5' N. latitude to commercial salmon seining seven days per week, effective at 12:00 noon Thursday, August 17, until further notice. Waters of Ursus Cove Lagoon remain closed to fishing.</p>
2-F-H-024-00 August 17	<p>Rescinds the regulatory markers protecting streams at the head end of the South Section of Port Dick Subdistrict in the Outer District for a 12-hour period, from 10:00 a.m. until 10:00 p.m. Friday, August 18. During this 12-hour period only, fishing is allowed up to the stream mouths at the head end of Port Dick. At the close of the 12-hour period at 10:00 p.m. Friday, August 18, the regulatory markers will once again become effective for future regularly scheduled fishing periods.</p> <p>In addition, this emergency order also rescinds the regulatory markers protecting streams in the Taylor Bay Section of Port Dick Subdistrict in the</p>

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Table 8. (page 7 of 7)

- Number/ Issue Date	DESCRIPTION
2-F-H-024-00 August 17 (continued)	<p>Outer District, or statistical reporting area 232-08, also effective at 10:00 a.m. Friday, August 18, until further notice. Beginning at that time, fishing is allowed up to the stream mouths in Taylor Bay during regularly scheduled openings.</p> <p>Finally, this emergency order opens all waters of Port Dick Subdistrict of the Outer District, including the North Section or statistical reporting area 232-09, to commercial salmon seining on a schedule of two 40-hour weekly periods, from Monday 6:00 a.m. until Tuesday 10:00 p.m. and from Thursday 6:00 a.m. until Friday 10:00 p.m., effective at 6:00 a.m. Monday, August 21, until further notice. All regulatory markers, except for those in the Taylor Bay Section, will be in effect when waters of Port Dick Subdistrict open to fishing at 6:00 a.m. Monday, August 21.</p>
2-F-H-025-00 August 22	Closes the Southern District (Kachemak Bay) personal use set gillnet fishery for coho salmon, effective at 6:00 a.m. Wednesday, August 23, 2000, for the remainder of the season.



Table 9. Total return of adult pink salmon to the Tutka Bay Hatchery in the Southern District of Lower Cook Inlet, 2000.

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<b><u>COMMERCIAL HARVEST</u></b>	
Tutka Bay/Lagoon:	
Purse Seine	60
Set Gillnet	8,520 <sup>a</sup>
Hatchery Cost Recovery	<u>1,043,705</u>
<b>TUTKA COMMERCIAL HARVEST</b>	<b>1,052,285</b>
<b><u>SPORT HARVEST</u></b>	
<b>TOTAL SPORT HARVEST (Tutka Bay and Lagoon)</b>	<b>1,500<sup>b</sup></b>
<b><u>ESCAPEMENT</u></b>	
Tutka Creek and Channel	19,048
Tutka Hatchery Brood Stock	<u>179,970</u>
<b>TOTAL ESCAPEMENT</b>	<b>199,018</b>
<b>TOTAL RETURN</b>	<b>1,252,803</b>

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<sup>a</sup> Based primarily on run timing, all of the set gillnet pink salmon catch in the Tutka Bay Subdistrict was apportioned to the Tutka Hatchery return.

<sup>b</sup> Figure represents estimated average sport catch of pinks in Tutka Bay from 1990 – 1999.

Commercial catch of Pacific herring (*Clupea pallasii*) in Kamishak Bay District, Lower Cook Inlet, 2000, and 2001

Percent by Weight	2000 Total Biomass	Percent by Weight	2001 Forecast Biomass	Percent by Weight
	2,546	31.37	457	4.03
	1,480	18.24	4,292	37.81
	732	9.02	2,182	19.22
	1,154	14.22	842	7.42
	1,382	17.03	1,173	10.33
	401	4.94	1,455	12.82
	98	1.21	438	3.86
	10	1.12	111	0.98
	55	0.68	107	0.94
	162	2.00	65	0.57
	15	0.18	229	2.02
	8,117	100.00	11,351	100.00

Commercial herring fishery in Kamishak Bay was not opened in 2000.

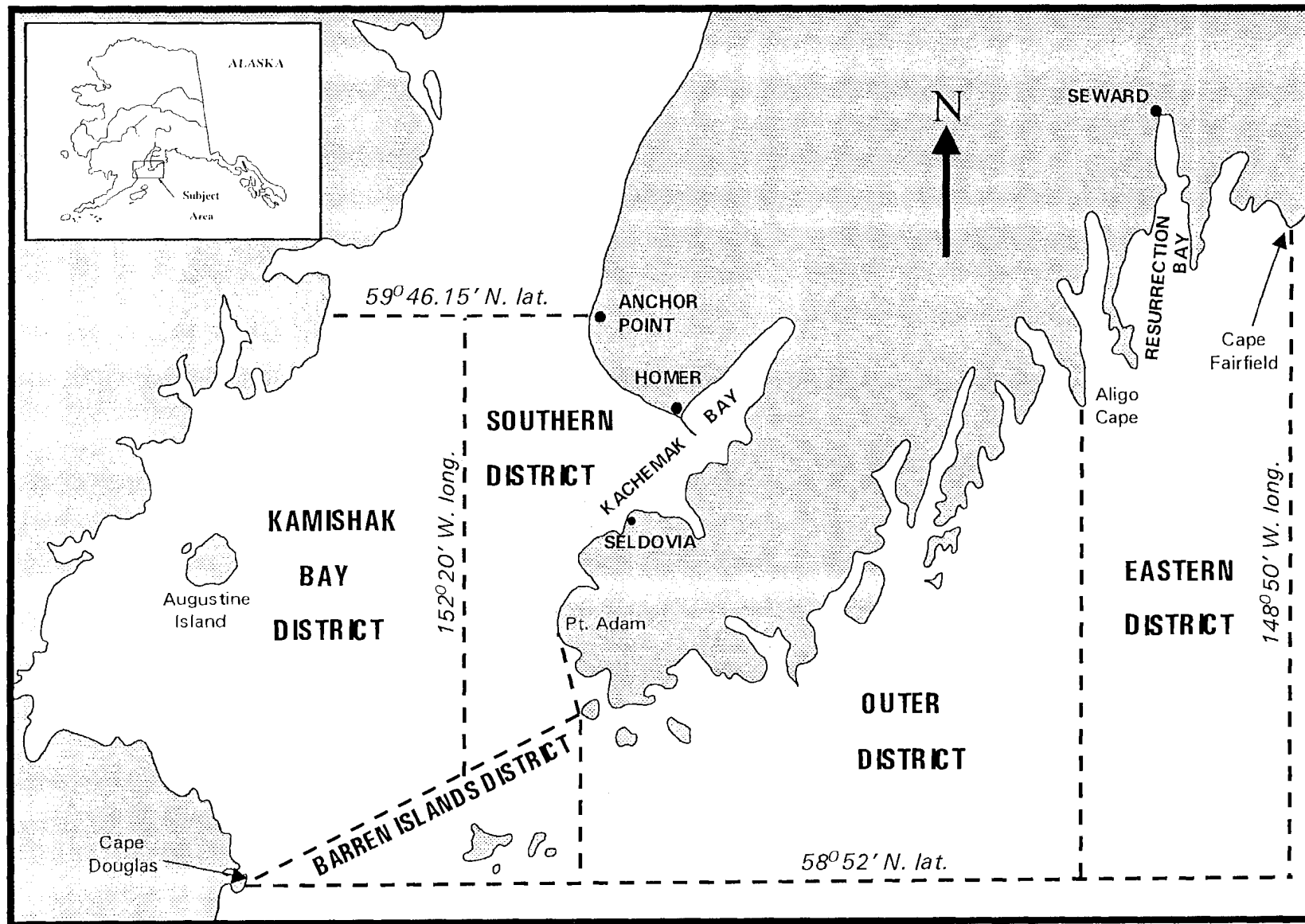
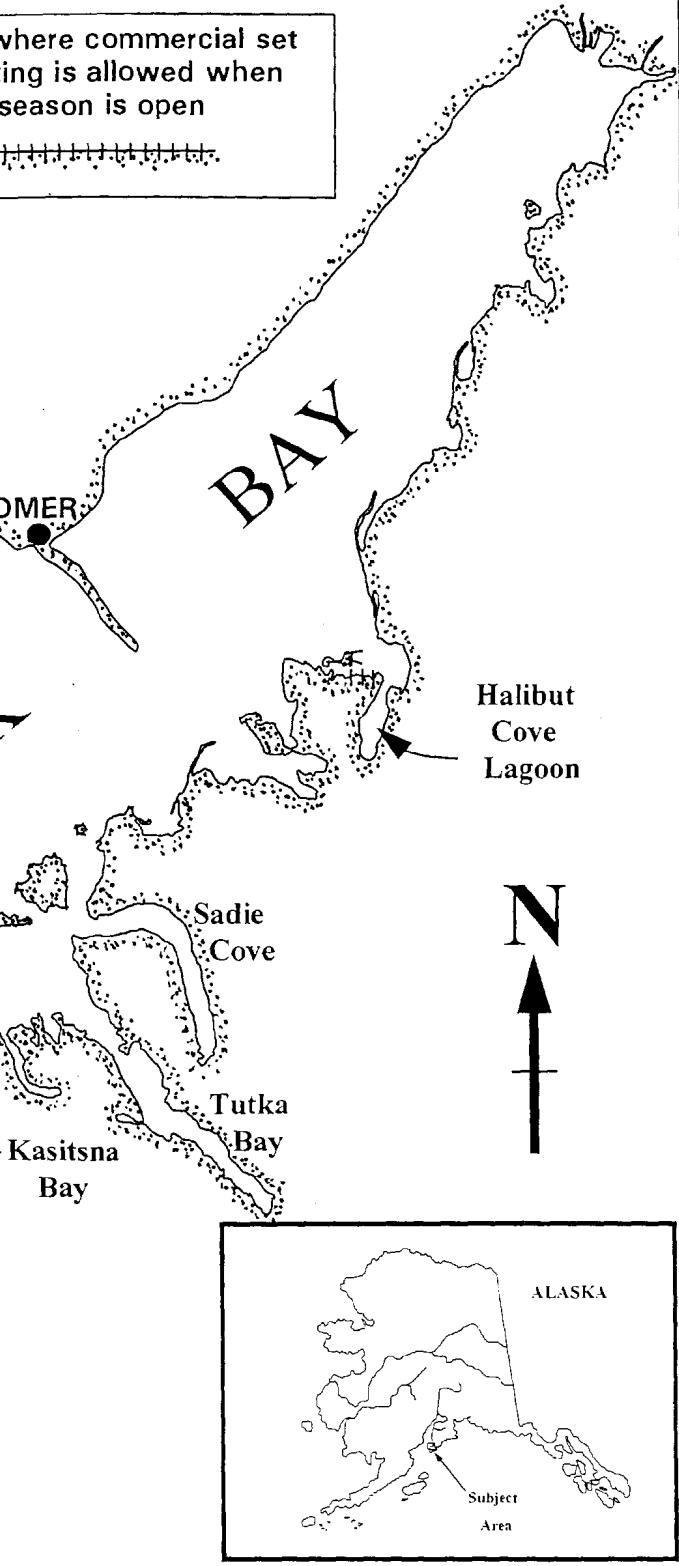
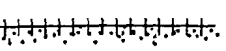
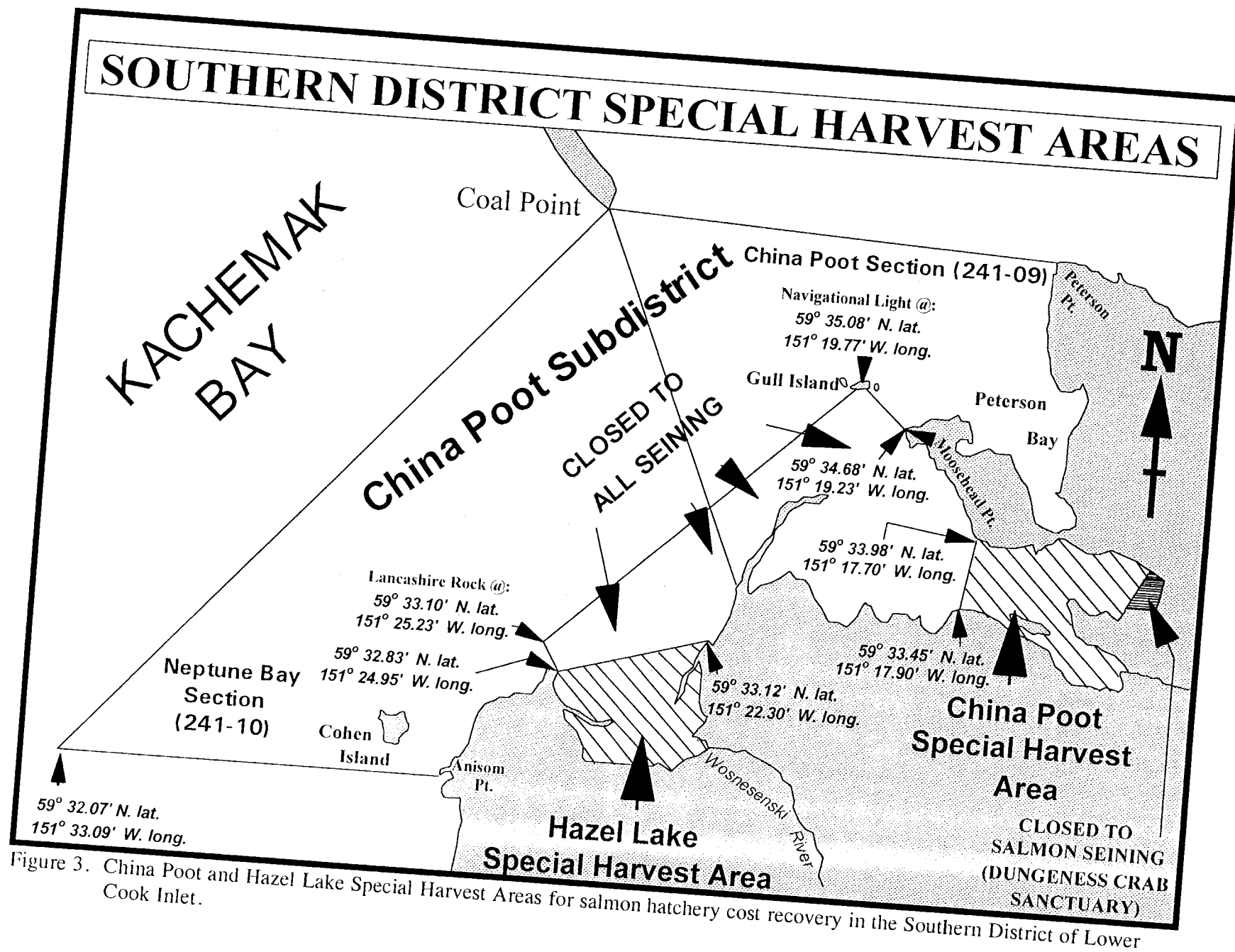


Figure 1. Lower Cook Inlet salmon and herring management area (not to scale).

where commercial set  
ing is allowed when  
season is open



as in the Southern District of Lower Cook Inlet.



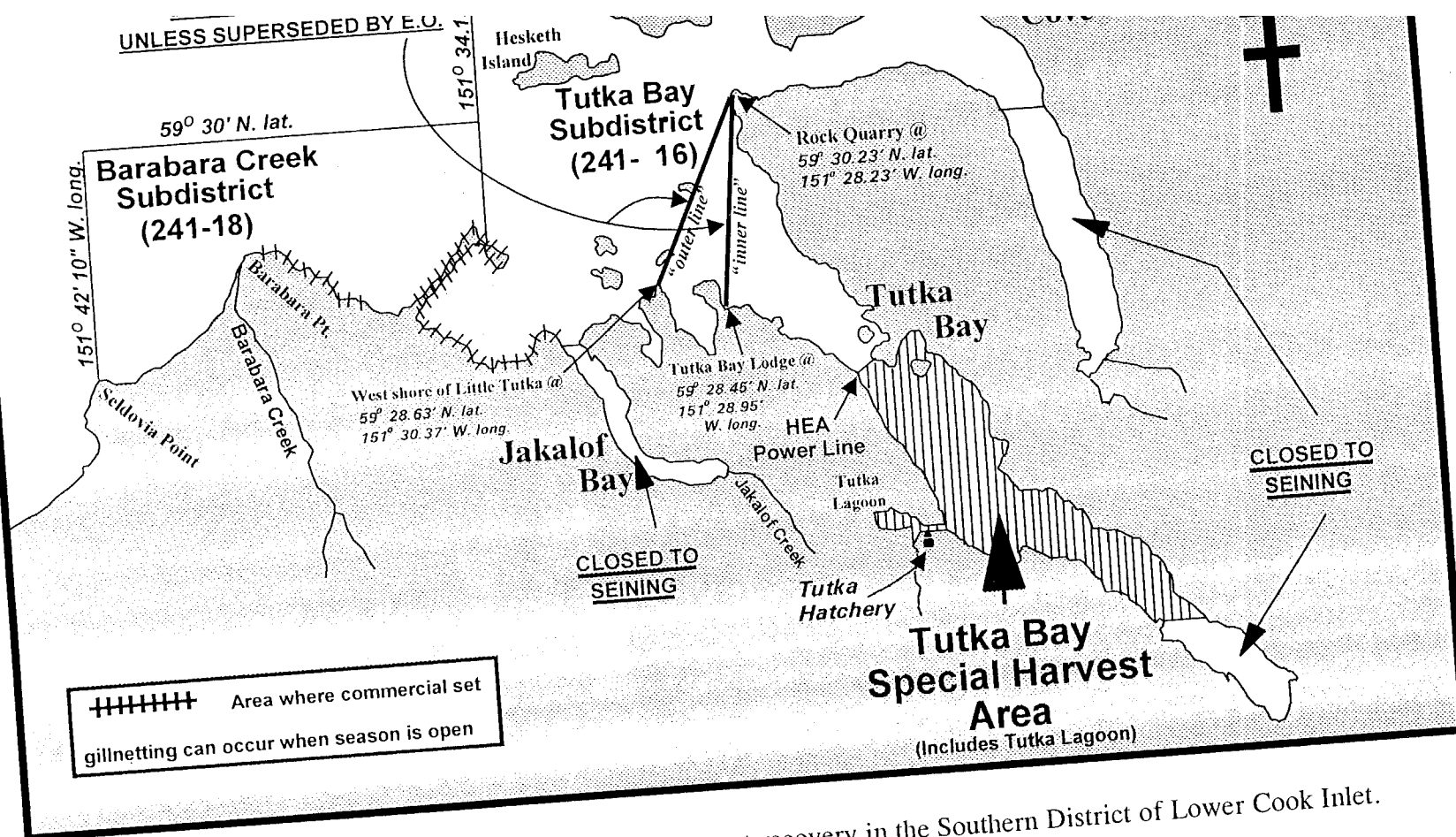


Figure 4. Tutka Special Harvest Area for salmon hatchery cost recovery in the Southern District of Lower Cook Inlet.

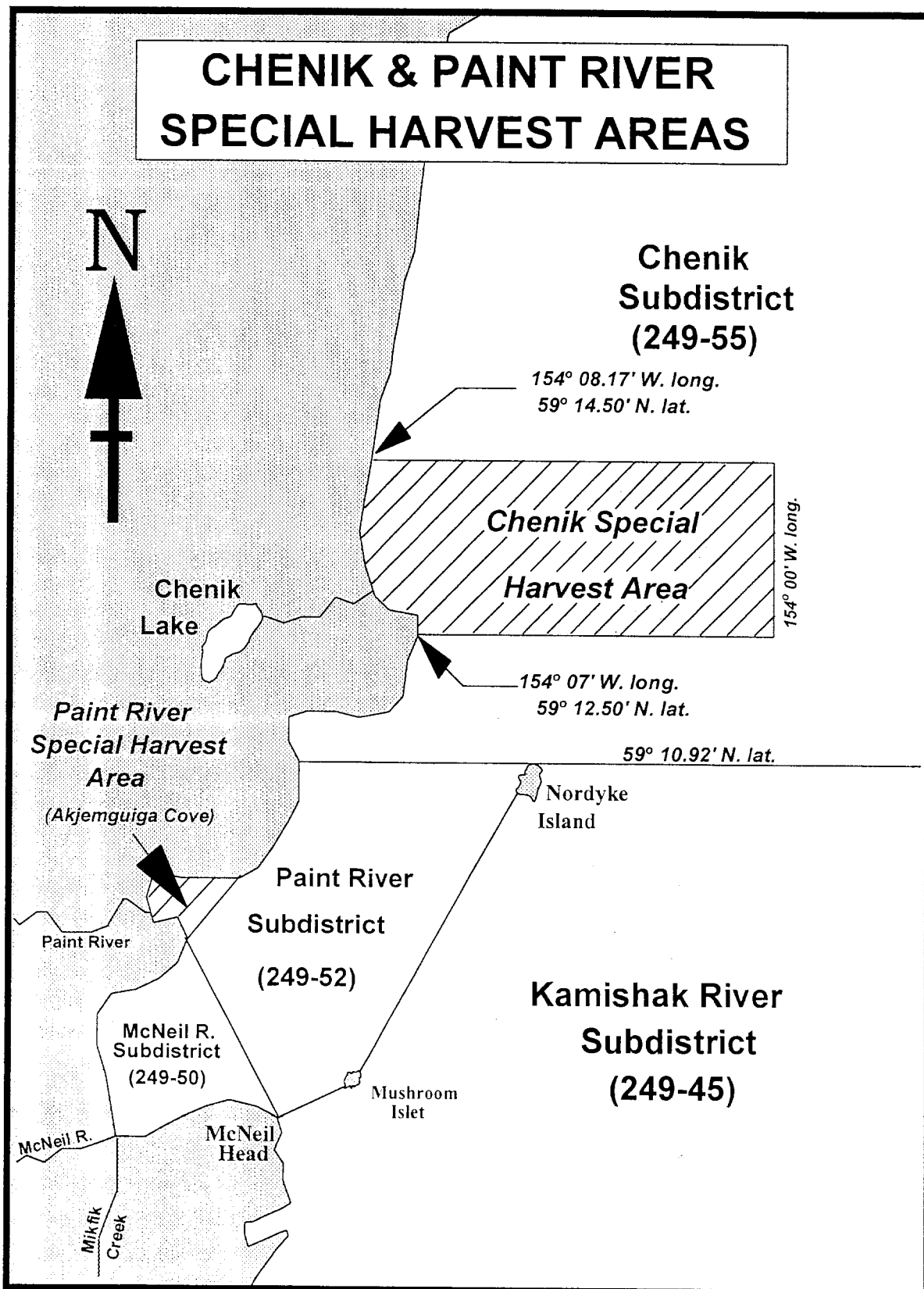


Figure 5. Chenik and Paint River Special Harvest Areas for salmon hatchery cost recovery in the Kamishak Bay District of Lower Cook Inlet.

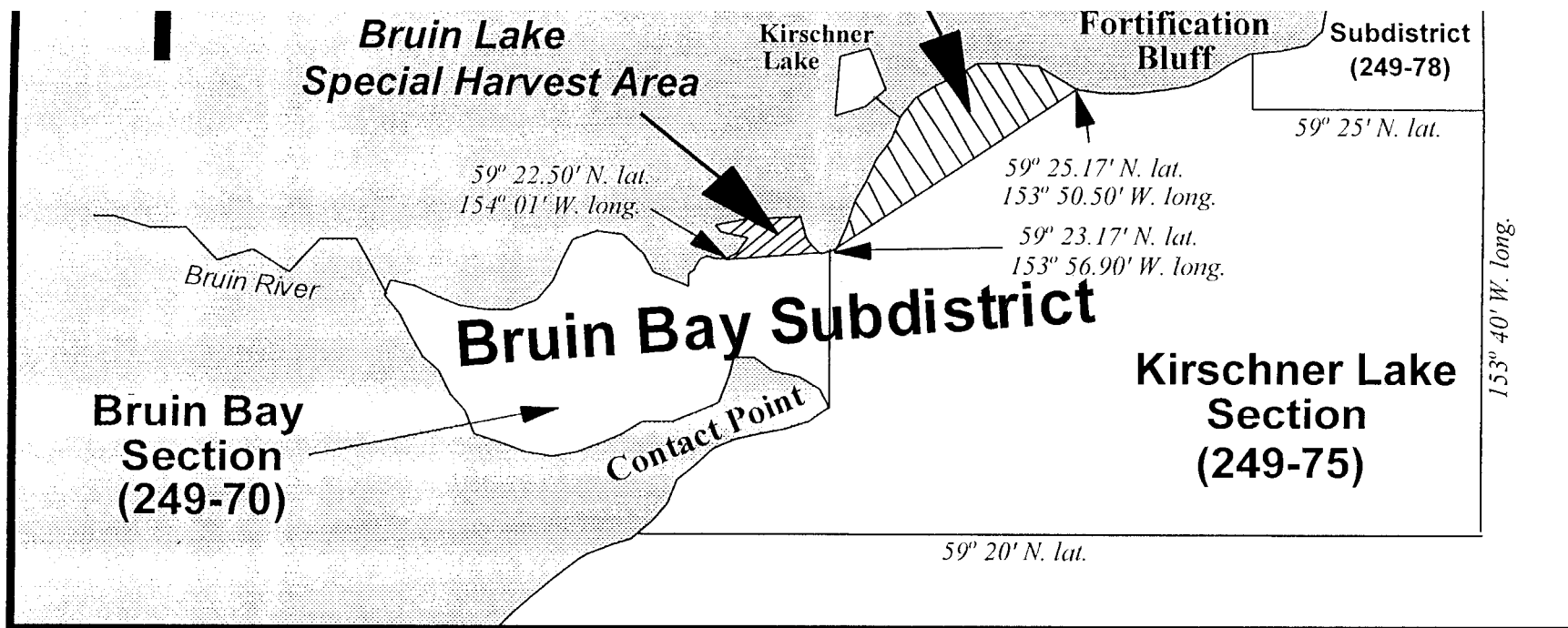


Figure 6. Kirschner and Bruin Lakes Special Harvest Areas for salmon hatchery cost recovery in the Kamishak Bay District of Lower Cook Inlet.



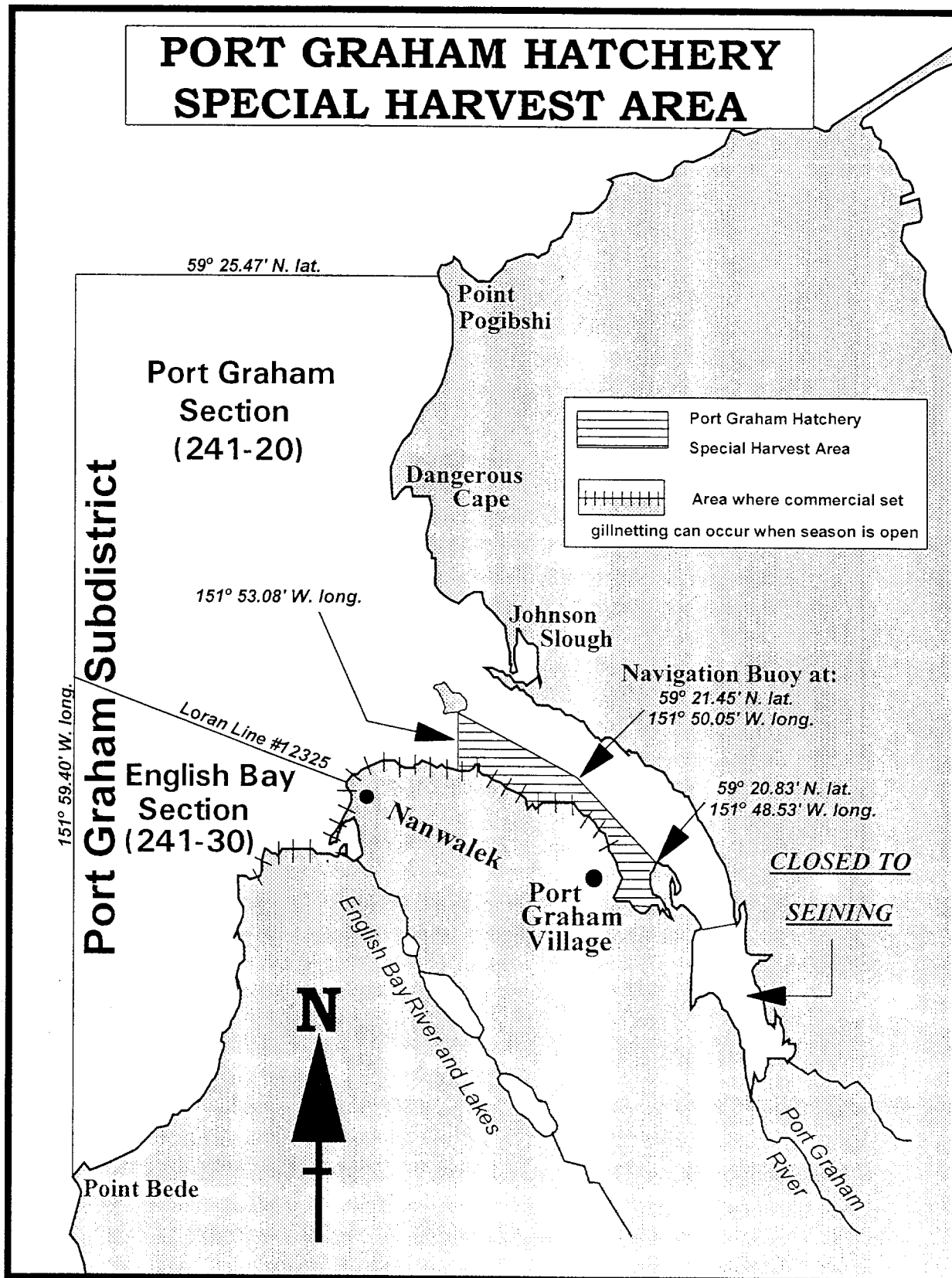
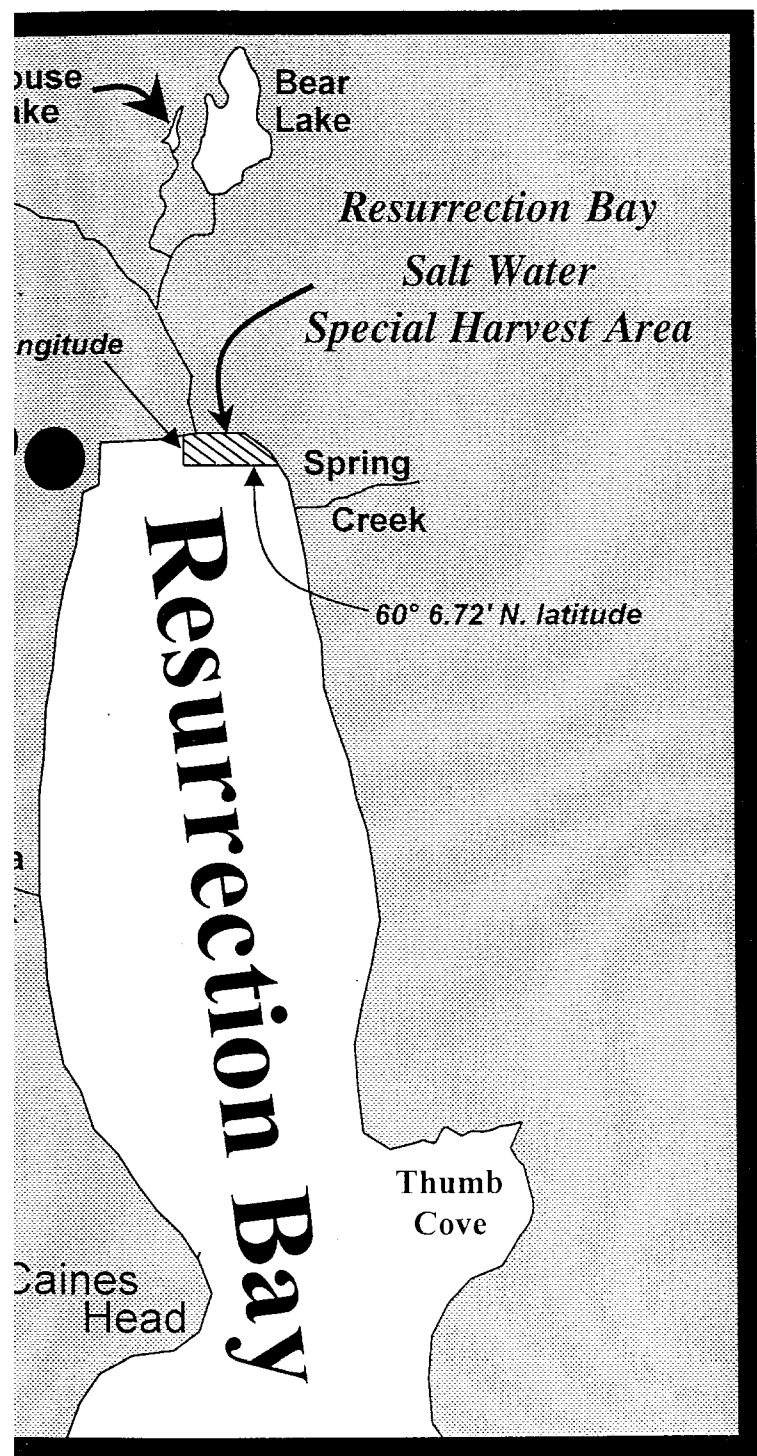


Figure 7. Port Graham Special Harvest Area for salmon hatchery cost recovery in the Southern District of Lower Cook Inlet.



Harvest Area for salmon hatchery cost recovery in the Cook Inlet.

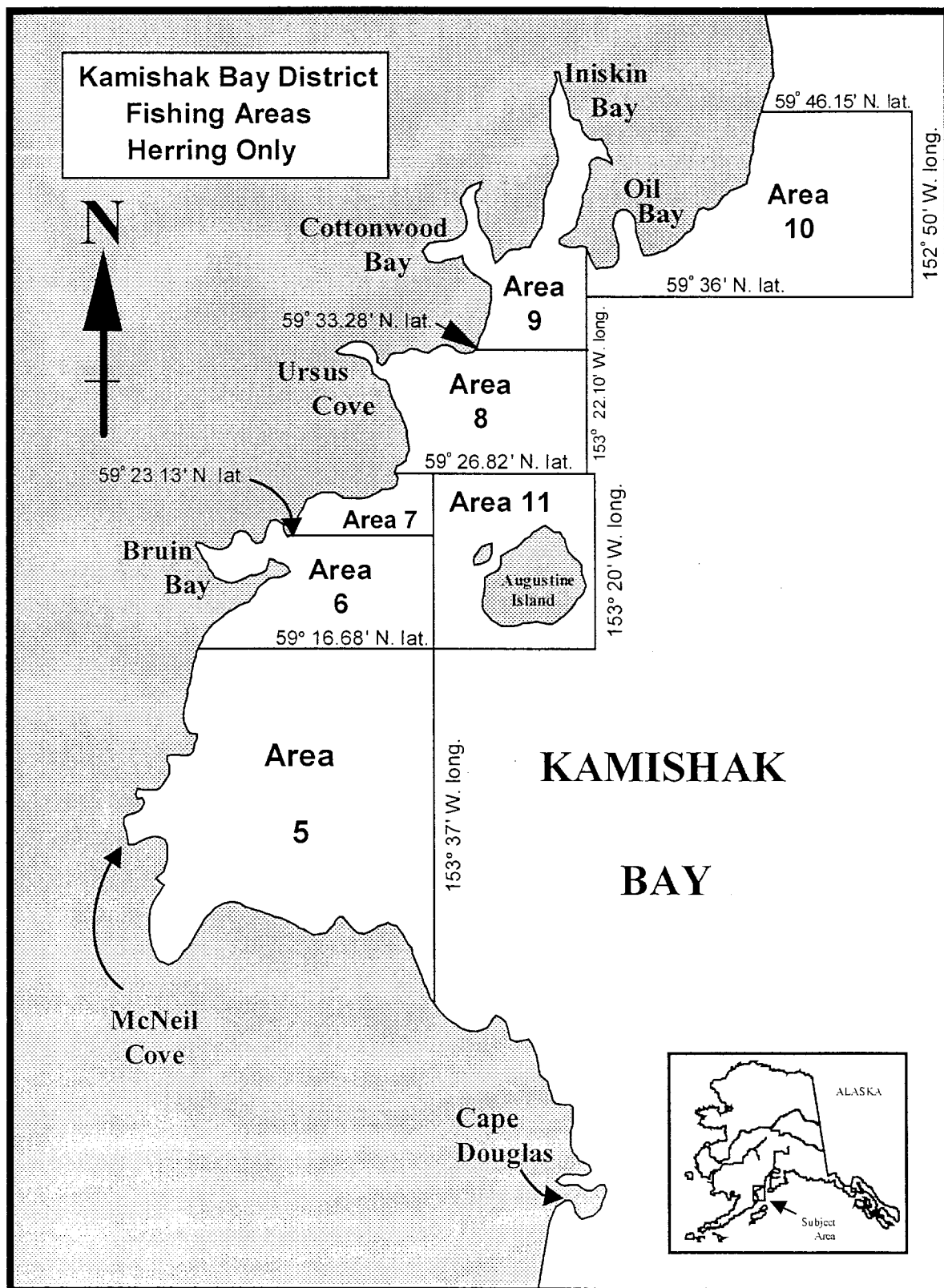


Figure 9. Commercial herring fishing areas in the Kamishak Bay District of Lower Cook Inlet.

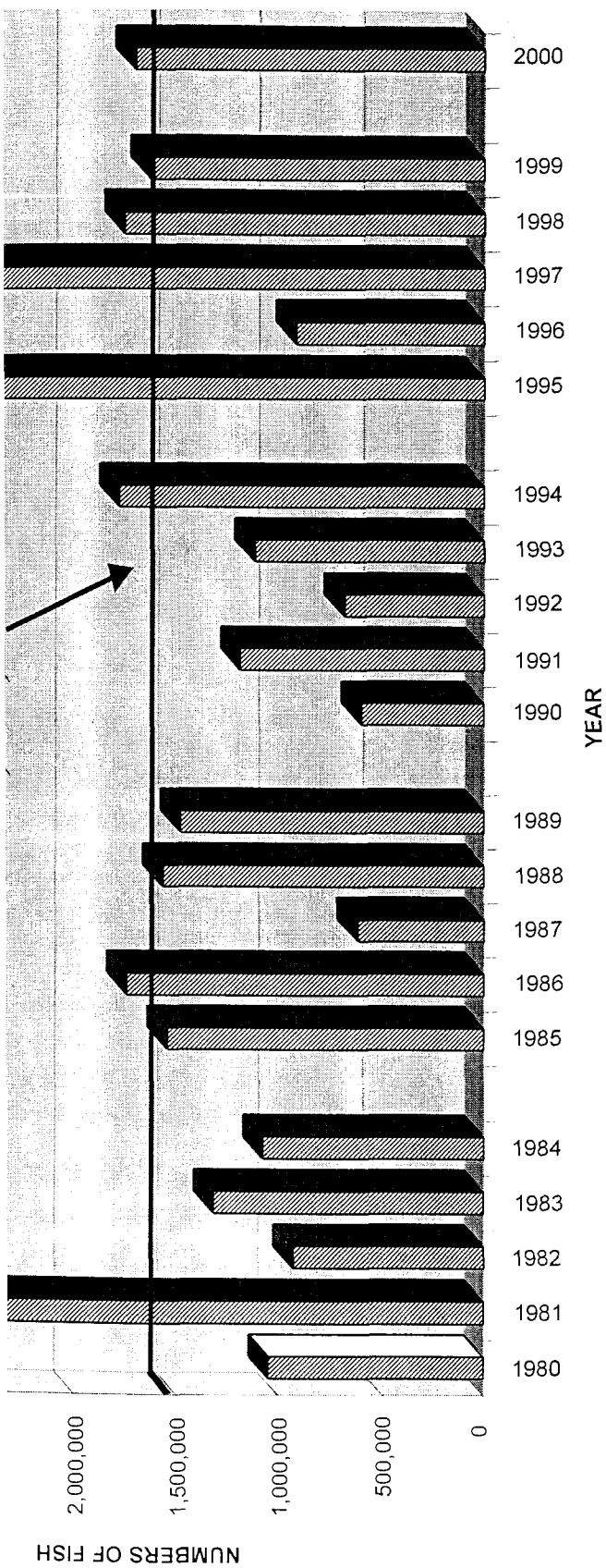


Figure 10. Total commercial salmon catch, Lower Cook Inlet, 1980 -2000.

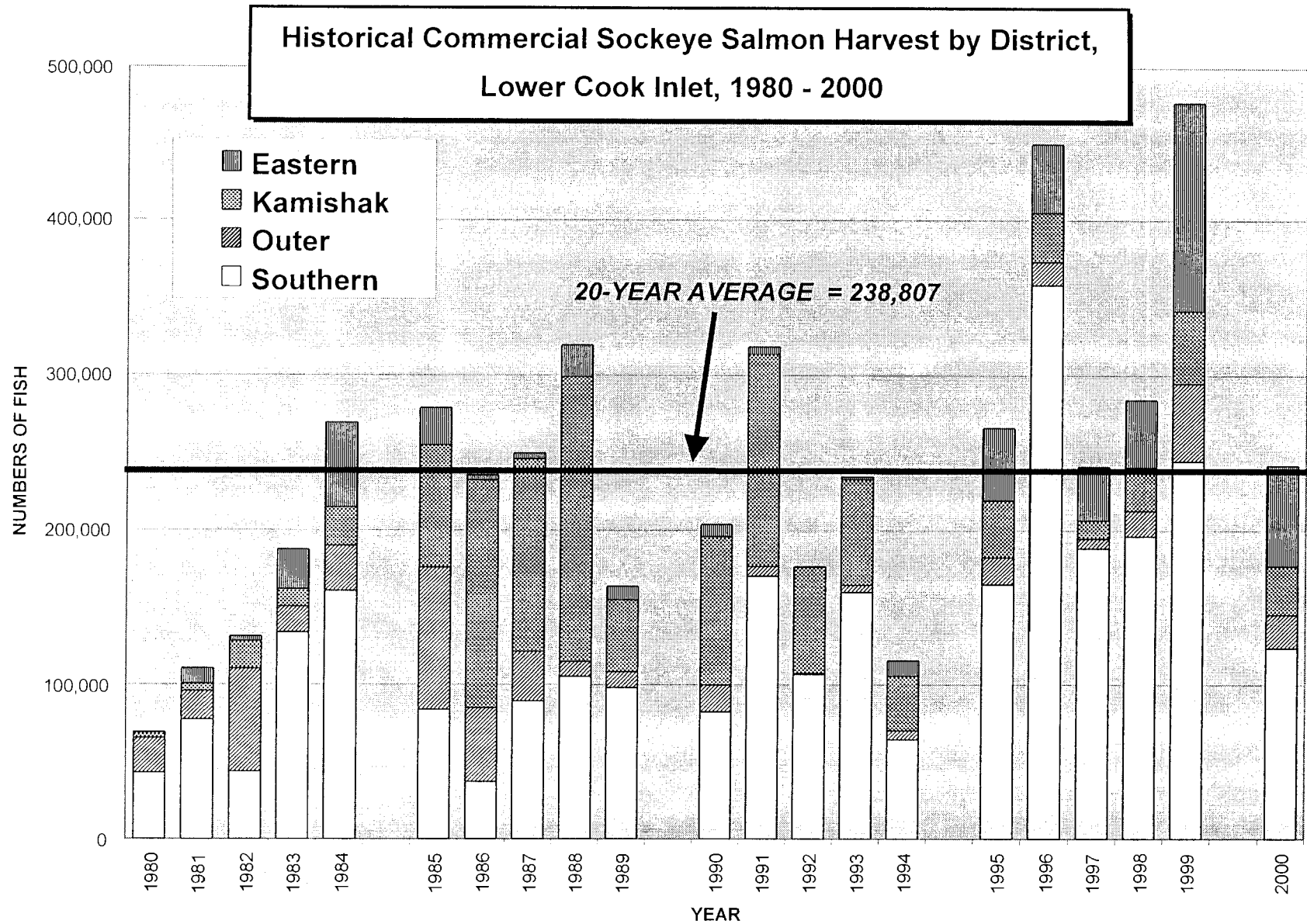


Figure 11. Commercial sockeye salmon catch by district, Lower Cook Inlet, 1980 - 2000.

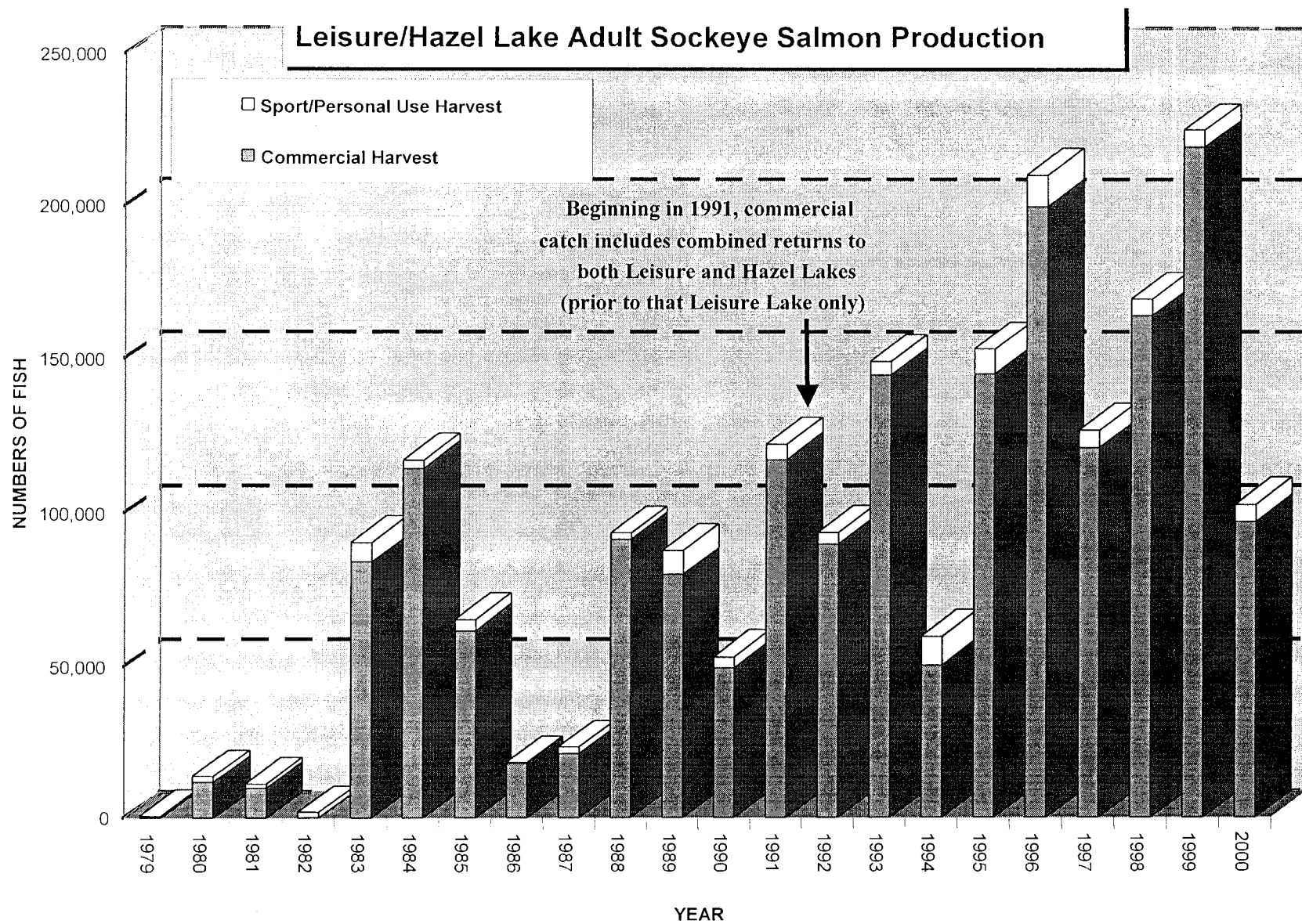


Figure 12. Sockeye salmon returns to Leisure and Hazel Lakes in the Southern District of Lower Cook Inlet, 1980 -2000.

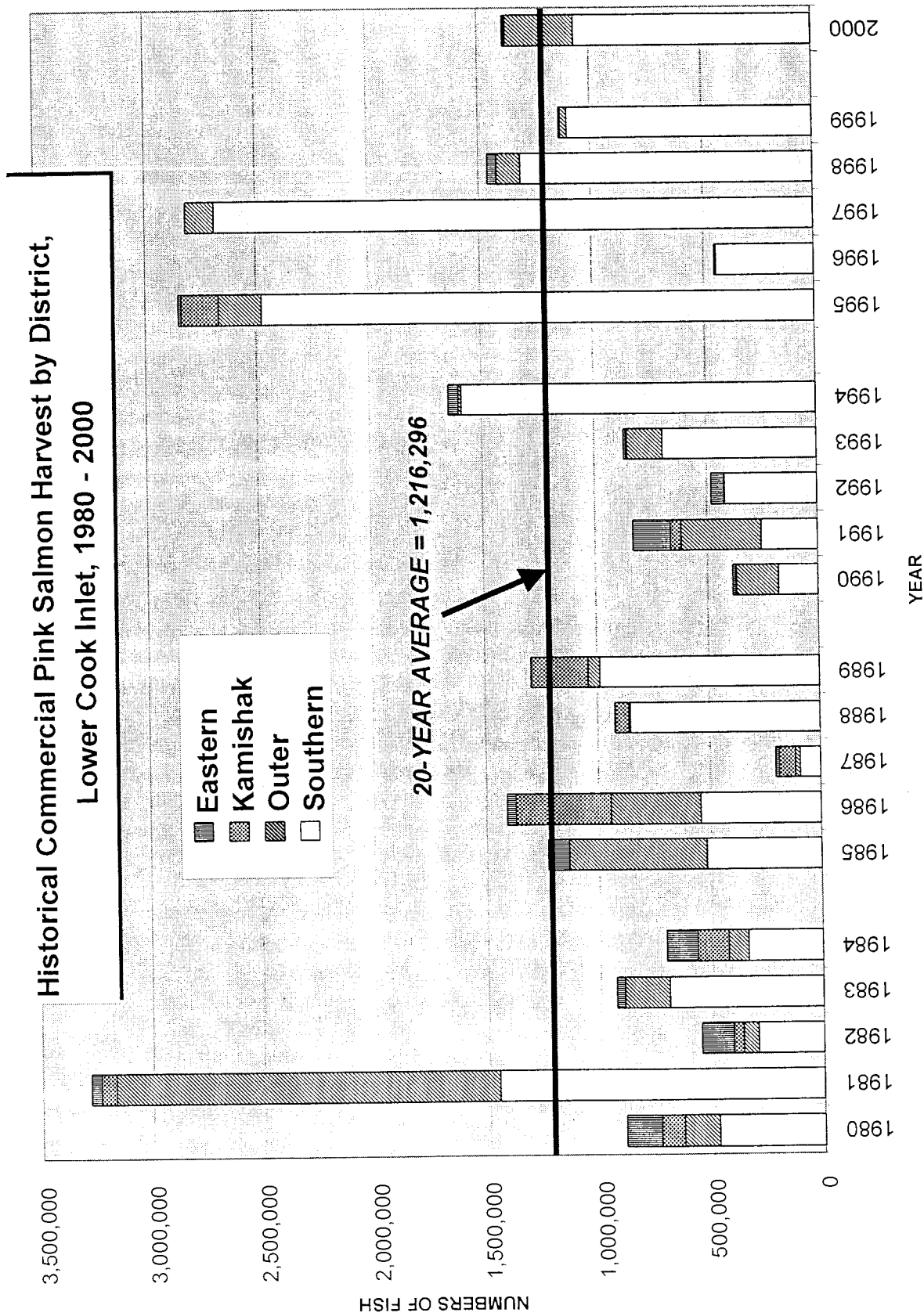


Figure 13. Commercial pink salmon catch by district, Lower Cook Inlet, 1980 - 2000.



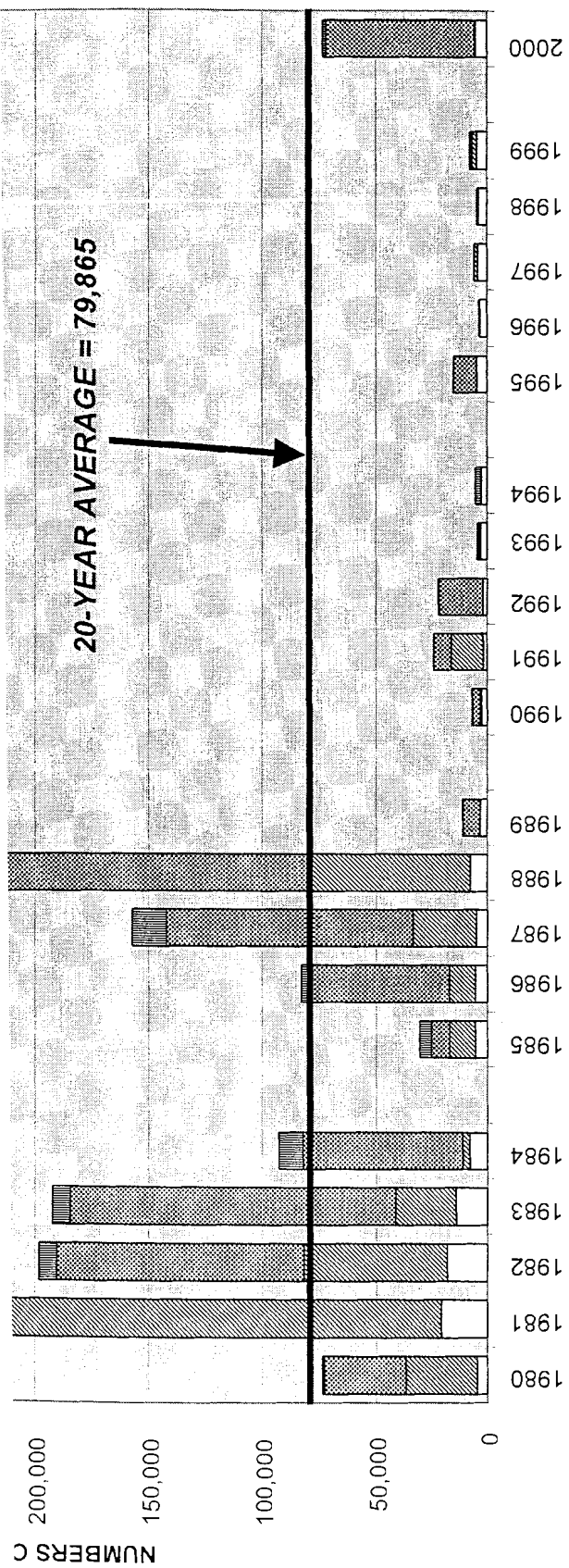


Figure 14. Commercial chum salmon catch by district, Lower Cook Inlet, 1980 - 2000.



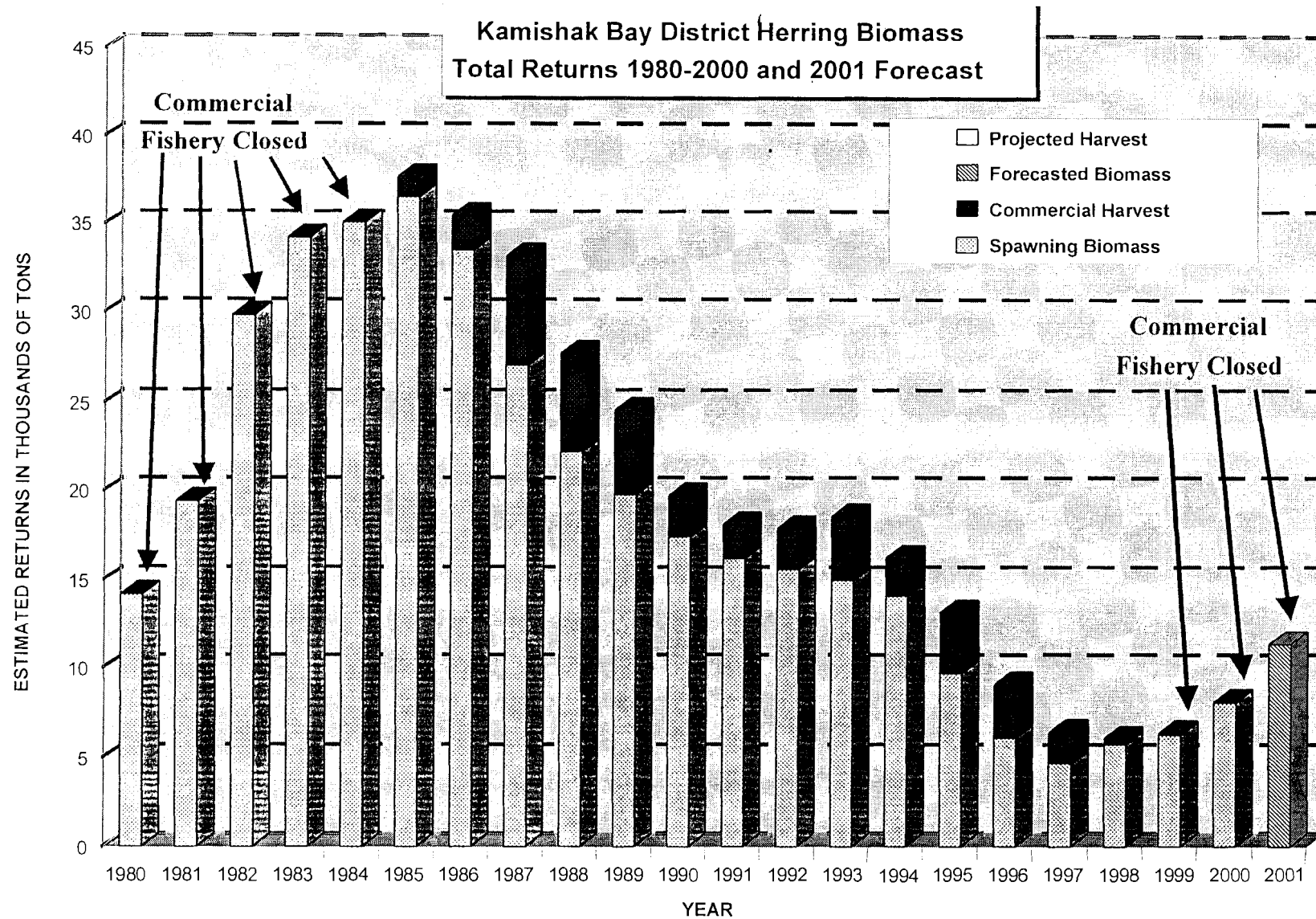


Figure 15. Biomass estimates and commercial harvests of Pacific herring in the sac roe seine fishery, Kamishak Bay, District, Lower Cook Inlet, 1980 - 2000, and 2001 projection.

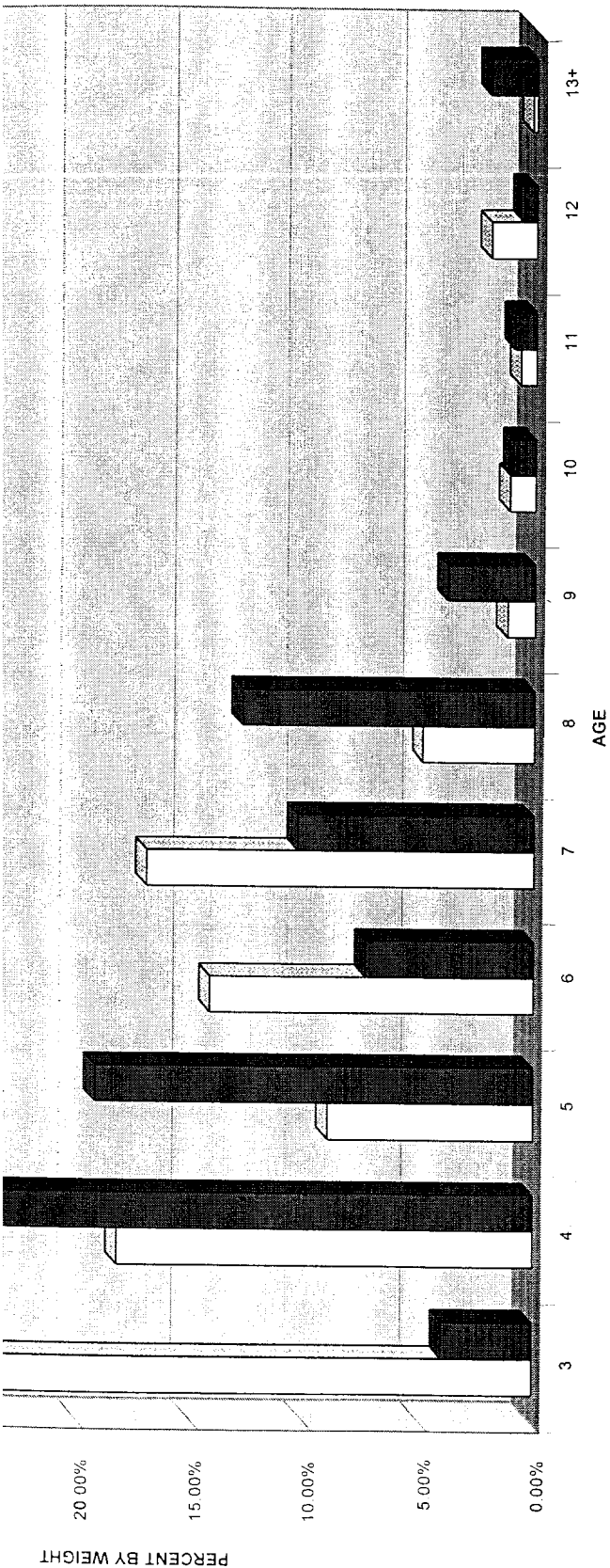


Figure 16. Herring age composition from samples collected in Kamishak Bay District, Lower Cook Inlet, 2000, and 2001 forecast.

Appendix Table 1. Salmon fishing permits issued and fished, by gear type, Lower Cook Inlet, 1980 - 2000<sup>a</sup>.

Year	Seines			Actively fished	Set Net Permits fished
	Permanent Permits	Interim Permits	Total Issued		
1980	75	9	84	83	40
1981	75	10	85	85	40
1982	77	7	84	69	39
1983	78	5	83	83	24
1984	78	3	81	54	35
1985	80	1	81	51	34
1986	79	0	79	62	34
1987	79	0	79	66	29
1988	79	0	79	71	27
1989	83	0	83	64	23
1990	82	1	83	71	20
1991	82	1	83	68	20
1992	82	1	83	63	21
1993	82	1	83	51	17
1994	82	1	83	32	16
1995	83	1	84	49	23
1996	84	1	85	34	24
1997	84	1	85	23	25
1998	84	1	85	41	24
1999	84	1	85	45	20
2000	84	1	85	36	24
1980-99 Avg.	81	2	83	58	27
1990-99 Avg.	83	1	84	48	21

<sup>a</sup> Data source: Commercial Fisheries Entry Commission and ADF&G fish ticket database.

of the commercial salmon harvest in thousands of dollars  
 er Cook Inlet, 1980 - 2000<sup>a</sup>.

Year	Coho	Pink	Chum	Total
1986	64	1,196	298	1,906
1990	69	5,334	1,346	7,507
1997	367	406	820	2,448
2004	57	696	513	1,990
1993	120	635	242	2,413
1987	86	974	78	2,822
1994	132	1,245	201	3,013
1991	118	295	598	2,989
1992	127	2,237	2,548	8,756
1993	59	1,660	39	3,004
1987	28	306	31	1,681
1995	36	275	48	1,493
1992	19	212	53	1,466
2002	41	287	7	1,164
1996	93	745	9	1,361
1981	62	1,245	24	2,760
1993	42	100	5	2,286
1966	36	1,286	10	2,421
1924	37	712	9	2,002
1959	23	470	20	3,023
1912	19	431	192	1,786
1956	81	1,016	345	2,825
100%	2.8%	36.0%	12.2%	100.0%

(average price per lb.) x (average weight per fish) x (catch) = Exvessel  
 from fish ticket information and may not reflect retroactive or

Appendix Table 3. Average salmon price in dollars per pound by species, Lower Cook Inlet, 1980 - 2000<sup>a</sup>.

Year	Chinook	Sockeye	Coho	Pink	Chum
1980	1.30	0.88	0.85	0.42	0.52
1981	1.35	1.10	0.75	0.44	0.49
1982	1.29	1.05	0.87	0.23	0.46
1983	1.00	0.75	0.70	0.25	0.29
1984	1.29	1.05	0.77	0.26	0.28
1985	1.60	1.25	0.85	0.22	0.31
1986	1.25	1.40	0.85	0.26	0.30
1987	1.25	1.60	1.00	0.42	0.46
1988	1.25	2.50	1.80	0.80	0.84
1989	1.25	1.60	0.70	0.40	0.40
1990	1.35	1.55	0.60	0.30	0.50
1991	1.12	0.83	0.29	0.13	0.27
1992	1.29	1.47	0.43	0.14	0.27
1993	1.02	0.80	0.51	0.12	0.28
1994	0.95	1.06	0.62	0.15	0.25
1995	1.17	1.11	0.47	0.15	0.24
1996	1.33	0.91	0.40	0.08	0.18
1997	1.29	0.93 <sup>b</sup>	0.50 <sup>b</sup>	0.15	0.23
1998	1.45	0.96 <sup>b</sup>	0.36 <sup>b</sup>	0.16	0.27
1999	1.96	1.22 <sup>b</sup>	0.45 <sup>b</sup>	0.16	0.32
2000	1.86	0.87 <sup>b</sup>	0.60 <sup>b</sup>	0.12	0.28
20-Year Avg.	1.29	1.20	0.69	0.26	0.36
1980-89 Avg.	1.28	1.32	0.91	0.37	0.44
1990-99 Avg.	1.29	1.08	0.46	0.15	0.28

<sup>a</sup> Average prices are determined only from fish ticket information and may not reflect retroactive or postseason adjustments.

<sup>b</sup> Average price for sockeyes and cohos includes only those fish actually sold and does not include hatchery cost recovery fish that were donated, discarded, or harvested but not paid for due to contractual agreement with the processor.

weight in pounds per fish by species in the commercial  
 Cook Inlet, 1980 - 2000<sup>a</sup>.

Sockeye	Coho	Pink	Chum
5.5	5.2	3.2	7.8
6.1	8.5	3.7	8.1
6.0	9.0	3.2	9.0
5.0	7.2	3.0	9.2
4.7	8.8	3.5	8.9
4.7	9.8	3.5	8.2
4.3	8.6	3.4	8.1
4.9	8.2	3.5	8.3
4.8	8.9	3.0	9.4
4.6	7.0	3.1	8.6
4.1	7.1	2.8	8.9
4.2	6.6	2.6	7.5
4.4	7.7	3.2	8.8
4.4	6.0	2.7	6.2
4.1	10.2	3.0	6.4
4.7	7.4	2.9	6.4
5.2	7.6	2.9	8.0
4.9	7.8	3.1	7.6
4.6	8.5	3.1	7.4
4.7	6.6	2.5	7.9
5.3	8.2	2.5	9.3
4.8	7.8	3.1	8.0
5.1	8.1	3.3	8.6
4.5	7.6	2.9	7.5

ibase.

Appendix Table 5. Commercial salmon catch in numbers of fish by species, Lower Cook Inlet, 1980 - 2000<sup>a</sup>.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1980	424	69,442	14,505	889,703	73,492	1,047,566
1981	1,086	110,255	10,776	3,279,183	336,093	3,737,393
1982	1,066	131,320	46,892	551,589	198,185	929,052
1983	873	187,645	11,219	927,607	192,319	1,319,663
1984	714	268,950	16,797	700,622	92,540	1,079,623
1985	1,043	278,694	10,327	1,229,708	30,640	1,550,412
1986	796	234,861	18,852	1,408,293	82,688	1,745,490
1987	1,179	248,848	14,354	201,429	157,018	622,828
1988	1,694	319,008	7,946	921,296	321,911	1,571,855
1989	1,893	163,271	12,089	1,296,926	11,305	1,485,484
1990	1,560	203,895	9,297	383,670	6,951	605,373
1991	1,419	317,947	19,047	828,709	24,232	1,191,354
1992	1,891	176,644	5,902	479,768	22,203	686,408
1993	2,168	233,834	13,477	866,774	4,367	1,120,620
1994	1,231	115,418	14,673	1,647,929	5,469	1,784,720
1995	2,303	265,423	17,709	2,848,464	15,636	3,149,535
1996	1,181	449,685	13,572	451,506	3,764	919,708
1997	1,262	240,184	11,004	2,814,431	5,908	3,072,789
1998	1,071	284,029	16,653	1,457,819	4,647	1,764,219
1999	1,764	476,779	8,033	1,140,488	7,941	1,635,005
2000	1,188	240,932	8,909	1,387,307	73,254	1,711,590
20-Year Avg.	1,331	238,807	14,656	1,216,296	79,865	1,550,955
1980-89 Avg.	1,077	201,229	16,376	1,140,636	149,619	1,508,937
1990-99 Avg.	1,585	276,384	12,937	1,291,956	10,112	1,592,973
2000 % of Total	0.07%	14.08%	0.52%	81.05%	4.28%	100.00%

<sup>a</sup> Data source: ADF&G fish ticket database.

of fish by species in the Southern  
0<sup>a</sup>.

Pink	Chum	Total
478,019	4,605	537,535
453,982	20,920	1,561,782
296,556	18,466	366,546
690,254	14,281	842,497
336,595	8,065	509,168
518,889	5,513	613,816
542,521	5,560	588,790
90,522	5,030	188,535
852,382	7,742	970,068
987,488	3,141	1,097,237
178,087	2,433	266,030
253,962	1,962	436,962
417,021	1,885	528,828
692,794	2,788	861,922
1,589,709	2,631	1,659,474
2,475,312	4,530	2,652,090
444,236	3,511	816,633
2,685,764	4,260	2,885,296
1,315,042	3,956	1,518,534
1,105,267	4,624	1,357,852
1,070,065	5,340	1,200,931
870,220	6,295	1,012,982
624,721	9,332	727,597
1,115,719	3,258	1,298,366
89.10%	0.44%	100.00%



Appendix Table 7. Commercial set gillnet catch of salmon in numbers of fish by species in the Southern District, Lower Cook Inlet, 1980 - 2000<sup>a</sup>.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1980	225	29,922	8,038	26,613	2,576	67,374
1981	222	53,665	6,735	68,794	8,524	137,940
1982	894	42,389	5,557	15,838	7,113	71,791
1983	822	41,707	1,799	20,533	4,377	69,238
1984	639	40,987	2,862	17,836	5,008	67,332
1985	958	23,188	3,908	22,898	4,221	55,173
1986	745	21,807	2,827	14,244	2,426	42,049
1987	653	28,209	2,025	9,224	2,419	42,530
1988	1,145	14,758	2,819	29,268	4,423	52,413
1989	1,281	13,970	4,792	16,210	1,877	38,130
1990	1,361	15,863	1,046	12,646	1,938	32,854
1991	842	20,525	5,011	3,954	1,577	31,909
1992	1,288	17,002	848	15,958	1,687	36,783
1993	1,089	14,791	3,088	12,008	2,591	33,567
1994	1,103	14,004	1,073	23,621	2,419	42,220
1995	2,078	19,406	3,564	41,654	3,958	70,660
1996	1,054	69,338	5,779	14,813	2,792	93,776
1997	1,136	59,412	4,475	64,162	4,166	133,351
1998	952	26,131	1,057	24,403	3,754	56,297
1999	1,491	27,646	1,374	5,348	4,313	40,194
2000	1,019	26,503	621	21,845	5,214	55,202
20-Year Avg.	999	29,736	3,434	23,001	3,609	60,779
1980-89 Avg.	758	31,060	4,136	24,146	4,296	64,397
1990-99 Avg.	1,239	28,412	2,732	21,857	2,922	57,161
2000 % of Total	1.85%	48.01%	1.12%	39.57%	9.45%	100.00%

<sup>a</sup> Data source: ADF&G fish ticket database.

non catch in numbers of fish by species in the Outer Cook Inlet, 1980 - 2000<sup>a</sup>.

ckeye	Coho	Pink	Chum	Total
2,514	16	154,041	32,246	208,827
8,133	485	1,714,115	238,393	1,971,187
6,781	92	67,523	63,075	197,600
6,835	54	199,794	27,203	243,900
9,276	41	89,085	3,204	121,609
1,957	3,210	618,222	11,844	725,252
8,472	5,052	401,755	11,701	466,986
1,845	2,481	23,890	28,663	86,893
9,501	2	6,094	71,202	86,804
0,286	72	52,677	43	63,079
7,404	74	191,320	614	209,414
3,408	12	359,664	14,337	380,423
572	1	146	181	900
4,613	119	159,159	970	164,863
5,930	993	13,200	32	20,155
7,642	1,272	192,098	474	211,498
4,999	96	7,199	3	22,297
3,255	63	128,373	1,575	136,266
5,991	45	102,172	611	118,819
1,117	1,482	32,484	2,062	87,148
1,623	20	306,555	302	328,502
4,327	783	225,651	25,422	276,196
4,560	1,151	332,720	48,757	417,214
4,093	416	118,582	2,086	135,178
.58%	0.01%	93.32%	0.09%	100.00%

Appendix Table 9. Commercial salmon catch in numbers of fish by species in the Eastern District, Lower Cook Inlet, 1980 - 2000<sup>a</sup>.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1980	0	122	426	155,779	720	157,047
1981	0	9,270	470	44,989	3,279	58,008
1982	0	3,092	950	143,639	7,698	155,379
1983	0	25,932	594	36,154	7,934	70,614
1984	47	54,420	536	136,797	10,535	202,335
1985	11	24,338	835	92,403	5,144	122,731
1986	0	3,055	770	40,243	3,757	47,825
1987	0	3,687	1,631	14,333	14,913	34,564
1988	1	20,253	486	1,740	24,668	47,148
1989	0	8,538	5,346	92	312	14,288
1990	0	7,682	7,645	11,815	307	27,449
1991	1	4,703	7,283	167,250	80	179,317
1992	0	432	3,136	60,007	86	63,661
1993	0	1,824	8,924	10,616	9	21,373
1994	1	9,661	10,410	44,987	2,792	67,851
1995	0	46,556	5,192	12,000	330	64,078
1996	0	44,919	3,932	36	223	49,110
1997	0	33,783	5,344	1	66	39,194
1998	1	44,274	14,365	38,829	51	97,520
1999	1	135,305	3,794	1,930	1,232	142,262
2000	1	64,099	8,114	4,473	1,540	78,227
20-Year Avg.	3	24,092	4,103	50,682	4,207	83,088
1980-89 Avg.	6	15,271	1,204	66,617	7,896	90,994
1990-99 Avg.	0	32,914	7,003	34,747	518	75,181
2000 % of Total	0.00%	81.94%	10.37%	5.72%	1.97%	100.00%

<sup>a</sup> Data source: ADF&G fish ticket database.

non catch in numbers of fish by species in the Kamishak  
 wer Cook Inlet, 1980 - 2000<sup>a</sup>.

ckeye	Coho	Pink	Chum	Total
3,877	2,495	101,864	35,921	144,157
4,972	1,845	66,097	73,501	146,416
8,014	38,685	43,871	108,946	209,527
1,207	7,138	1,405	142,901	162,652
4,600	13,027	138,145	70,736	246,511
8,250	2,024	194	8,139	88,613
6,496	9,935	423,774	61,670	641,889
3,654	8,079	72,684	108,412	312,836
3,952	4,471	61,080	218,299	467,835
6,395	4	256,669	7,809	310,880
6,397	26	2,448	3,597	102,480
6,612	2,337	47,833	7,853	194,652
8,847	1,488	2,594	20,051	93,019
7,650	3	4,205	600	72,462
5,296	1,897	33	14	37,240
6,427	6,084	169,054	10,302	221,869
1,604	1	35	27	31,668
1,733	0	293	7	12,033
7,502	0	1,776	29	29,307
3,913	0	807	23	47,743
1,636	7	6,214	66,072	103,930
0,020	4,977	69,743	43,942	178,690
4,142	8,770	116,578	83,633	273,132
5,898	1,184	22,908	4,250	84,247
.44%	0.01%	5.98%	63.57%	100.00%

Appendix Table 11. Total commercial salmon catch in numbers of fish by district, Lower Cook Inlet, 1980 - 2000<sup>a</sup>.

Year	Southern	Outer	Kamishak	Eastern	Total
1980	537,535	208,827	144,157	157,047	1,047,566
1981	1,561,782	1,971,187	146,416	58,008	3,737,393
1982	366,546	197,600	209,527	155,379	929,052
1983	842,497	243,900	162,652	70,614	1,319,663
1984	509,168	121,609	246,511	202,335	1,079,623
1985	613,816	725,252	88,613	122,731	1,550,412
1986	588,790	466,986	641,889	47,825	1,745,490
1987	188,535	86,893	312,836	34,564	622,828
1988	970,068	86,804	467,835	47,148	1,571,855
1989	1,097,237	63,079	310,880	14,288	1,485,484
1990	266,030	209,414	102,480	27,449	605,373
1991	436,962	380,423	194,652	179,317	1,191,354
1992	528,828	900	93,019	63,661	686,408
1993	861,922	164,863	72,462	21,373	1,120,620
1994	1,659,474	20,155	37,240	67,851	1,784,720
1995	2,652,090	211,498	221,869	64,078	3,149,535
1996	816,633	22,297	31,668	49,110	919,708
1997	2,885,296	136,266	12,033	39,194	3,072,789
1998	1,518,573	118,819	29,307	97,520	1,764,219
1999	1,357,852	87,148	47,743	142,262	1,635,005
2000	1,200,931	328,502	103,930	78,227	1,711,590
20-Year Avg.	1,012,982	276,196	178,690	83,088	1,550,955
1980-89 Avg.	727,597	417,214	273,132	90,994	1,508,937
1990-99 Avg.	1,298,366	135,178	84,247	75,181	1,592,973
2000 % of Total	70.16%	19.19%	6.07%	4.57%	100.00%

<sup>a</sup> Data source: ADF&G fish ticket database.

ook salmon catch in numbers of fish by district, Lower  
- 2000<sup>a</sup>.

Outer	Kamishak	Eastern	Total
10	0	0	424
61	1	0	1,086
129	11	0	1,066
14	1	0	873
3	3	47	714
19	6	11	1,043
6	14	0	796
14	7	0	1,179
5	33	1	1,694
1	3	0	1,893
2	12	0	1,560
2	17	1	1,419
0	39	0	1,891
2	4	0	2,168
0	0	1	1,231
12	2	0	2,303
0	1	0	1,181
0	0	0	1,262
0	0	1	1,071
3	0	1	1,764
2	1	1	1,188
14	8	3	1,331
26	8	6	1,077
2	8	0	1,585
0.17%	0.08%	0.08%	100.00%

Appendix Table 13. Commercial sockeye salmon catch in numbers of fish by district, Lower Cook Inlet, 1980 - 2000<sup>a</sup>.

Year	Southern	Outer	Kamishak	Eastern	Total
1980	42,929	22,514	3,877	122	69,442
1981	77,880	18,133	4,972	9,270	110,255
1982	43,433	66,781	18,014	3,092	131,320
1983	133,671	16,835	11,207	25,932	187,645
1984	160,654	29,276	24,600	54,420	268,950
1985	84,149	91,957	78,250	24,338	278,694
1986	36,838	48,472	146,496	3,055	234,861
1987	89,662	31,845	123,654	3,687	248,848
1988	105,302	9,501	183,952	20,253	319,008
1989	98,052	10,286	46,395	8,538	163,271
1990	82,412	17,404	96,397	7,682	203,895
1991	170,224	6,408	136,612	4,703	317,947
1992	106,793	572	68,847	432	176,644
1993	159,747	4,613	67,650	1,824	233,834
1994	64,531	5,930	35,296	9,661	115,418
1995	164,798	17,642	36,427	46,556	265,423
1996	358,163	14,999	31,604	44,919	449,685
1997	188,413	6,255	11,733	33,783	240,184
1998	196,262	15,991	27,502	44,274	284,029
1999	243,444	51,117	46,913	135,305	476,779
2000	123,574	21,623	31,636	64,099	240,932
20-Year Avg.	130,368	24,327	60,020	24,092	238,807
1980-89 Avg.	87,257	34,560	64,142	15,271	201,229
1990-99 Avg.	173,479	14,093	55,898	32,914	276,384
2000 % of Total	51.29%	8.97%	13.13%	26.60%	100.00%

<sup>a</sup> Data source: ADF&G fish ticket database.

key salmon catch in thousands of fish by subdistrict,  
let, 1959 – 2000<sup>a, b</sup>.

1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
0	0	0	0	0	0	74.5	99.4	1.8	2.2
2.6	0.5	0	0	0	0	0	0	3.1	0
5.1	0.5	0	2.0	0	2.2	1.5	0	1.0	1.6
0	0	0	0	0	0	0	0	0	0
2.0	1.1	0.7	1.4	1.5	1.9	2.7	1.7	1.3	1.3
5.2	2.9	9.0	5.2	6.0	11.8	6.3	5.6	6.0	10.0
1.7	1.2	2.1	0.9	1.0	2.2	1.9	1.1	1.2	1.5
6.8	7.8	5.5	3.5	2.7	10.4	7.7	4.3	3.7	5.6
0	0	0	0	0	0	0	0	0	0
0	0	1.9	0.2	0	0	0	8.9	2.8	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0.2	0	1.9	0	0
0	0	0	0	0	0	0	0	0	0
1.9	1.1	1.5	0.8	4.1	0.3	0.6	0.1	0	0
25.3	15.1	20.7	14.0	15.3	29.0	95.2	122.8	20.9	22.2

1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
0	0	0	0	0	0	0.6	0	0	3.4
0.6	0	5.8	0	0	0.1	8.7	3.0	25.9	50.8
0	18.9	31.1	10.6	24.4	21.5	17.2	66.3	16.8	29.2
0	0	0	0	0	0	0	0	0	0
3.4	5.1	3.6	12.9	5.3	11.5	11.2	1.2	77.7	116.6
12.6	14.2	21.3	92.1	15.6	13.2	41.0	15.8	35.9	26.7
2.1	2.1	3.0	5.6	2.6	1.6	5.3	5.0	6.7	4.9
9.2	13.6	16.6	30.5	12.9	16.5	20.3	21.5	13.4	12.5
0	0.2	5.3	4.6	0.5	0	4.9	0	2.8	0
0	3.8	2.1	0	1.2	3.9	0	17.8	5.8	10.7
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.3	2.7	13.9
0	0	0	0	0	0	0	0	0	0
0.2	0.3	2.8	0.1	1.9	1.1	1.1	0.4	0	0.3
28.1	58.2	101.6	156.4	64.4	69.4	110.3	131.3	187.6	269.0

1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
0	0	0	0	0	1.7	9.0	44.6	43.9	31.7
20.2	8.5	7.7	4.7	0.4	0.2	0.6	2.0	1.0	2.1
9.5	10.3	5.7	1.8	0	3.5	5.9	17.6	15.0	6.2
0	0	11.7	4.6	0.6	1.0	0	0	0	0
24.9	46.6	20.3	36.0	14.7	19.0	12.2	9.0	75.3	12.3
33.6	35.8	49.9	116.7	76.0	127.6	38.7	133.4	225.2	116.1
12.9	13.4	7.9	13.4	12.9	8.4	11.0	15.4	27.8	14.4
2.5	1.8	4.3	4.0	3.3	4.4	2.7	4.2	11.9	12.5
1.4	0	0	0	0	0	0	2.6	17.9	33.1
5	0	0.1	7.0	9.9	1.3	3.4	2.7	0	2.6
14.6	7.0	9.1	12.9	4.0	0.9	0	0.1	0	0.2
0	0	0	0.4	0	0	0	0	0	0
34.2	38.9	70.3	60.4	14.4	24.6	0	0	0	0
0	0.2	14.5	55.9	40.5	39.7	31.9	33.6	31.6	9.0
0.2	0.8	2.4	0.1	0	1.5	0	0.2	0	0
9.0	163.3	203.9	317.9	176.6	233.8	115.4	265.4	449.7	240.2

- continued -



Appendix Table 14. (page 2 of 2)

Location	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Resurrection Bay	35.0	135.2	64.1										
Aialik Bay	8.6	0.1	T										
Nuka Bay	16.0	51.1	21.6										
Port Dick	0	0	T										
Halibut Cove & Lagoon	62.3	42.9	24.3										
China Poot <sup>b</sup>	100.2	170.6	78.3										
Tutka/Barabara	9.8	22.9	12.4										
Seldovia Bay	6.0	6.3	6.4										
Port Graham Bay	17.9	0.7	2.1										
Kamishak/Douglas	0	0	T										
McNeil (Mikfik)	0	7.2	0										
Paint River	0	0	0										
Chenik Lake	0	0	0										
Bruin/Kirschner	27.5	39.8	31.6										
Miscellaneous	0.7	0	T										
Totals	284.0	476.8	240.9										

<sup>a</sup> Data source: ADF&G fish ticket database.

<sup>b</sup> "T" denotes trace, less than 50 fish caught.

<sup>c</sup> China Poot Subdistrict, which includes China Poot, Peterson, and Neptune Bays, was part of Halibut Cove Subdistrict prior to 1988.

eye salmon returning to China Poot Bay in the Southern  
r Cook Inlet, by user group, 1979 - 2000<sup>a</sup>.

Personal Harvest	Commercial Harvest	Non- harvested fish	Total Return
0	<sup>b</sup>	0	650
1,000	12,000	0	14,000
0	10,000	0	11,500
1,320	200	1,430	3,400
5,910	84,020	10	90,420
2,000	114,360	500	117,360
3,000	61,500	920	65,920
150	18,350	200	18,800
2,000	21,500	0	23,700
1,500	91,469	470	93,939
7,000	79,714	0	87,714
3,000	49,587	0	53,087
4,000	117,000 <sup>c</sup>	0	122,000
3,500	89,791 <sup>c</sup>	0	93,591
4,000	144,677 <sup>c</sup>	0	149,077
8,500	50,527 <sup>c</sup>	0	59,527
7,000	145,392 <sup>c</sup>	450	153,842
9,000	200,000 <sup>c</sup>	441	210,441
4,900 <sup>e</sup>	120,900 <sup>c</sup>	1,130	127,620
4,900 <sup>e</sup>	164,000 <sup>c</sup>	380	170,542
4,900 <sup>e</sup>	219,300 <sup>c</sup>	522	225,983
4,900 <sup>e</sup>	97,100 <sup>c</sup>	256	102,906
3,930	90,052	319	94,946

Total Return" includes returns only to Leisure Lake in China Poot  
ned returns to both Leisure Lake in China Poot Bay and Hazel Lake

in China Poot, Halibut Cove, and Tutka Bay Subdistricts were  
turns.

000 represent the estimated recent 10-year average.

997 - 2000 represent the statewide sport fish harvest survey average

Appendix Table 16. Commercial catch and escapement of sockeye salmon at Chenik Lake in the Kamishak Bay District of Lower Cook Inlet, 1975 - 2000.

Return Year	Commercial Harvest	Escapement <sup>a</sup>	Total Return
1975	<sup>b</sup>	100	100
1976	<sup>b</sup>	900	900
1977	<sup>b</sup>	200	200
1978	<sup>b</sup>	100	100
1979	<sup>b</sup>	<sup>c</sup>	<sup>b</sup>
1980	<sup>b</sup>	3,500	3,500
1981	<sup>b</sup>	2,500	2,500
1982	<sup>b</sup>	8,000	8,000
1983	2,800	11,000	13,800
1984	16,500	13,000	29,500
1985	10,500	3,500	14,000
1986	111,000	7,000	118,000
1987	102,000	10,000	112,000
1988	164,200	9,000	173,200
1989	38,905	12,000	50,905
1990	70,347	17,000	87,347
1991	60,397	10,189	70,586
1992	13,793	9,269	23,062
1993	24,567	4,000	28,567
1994	0 <sup>d</sup>	808	808
1995	0 <sup>d</sup>	1,086	1,086
1996	0 <sup>d</sup>	2,990	2,990
1997	0 <sup>d</sup>	2,338	2,338
1998	0 <sup>d</sup>	1,880	1,880
1999	0 <sup>d</sup>	2,850	2,850
2000	0 <sup>d</sup>	4,800	4,800
Average Since 1985	39,014	6,169	45,183

<sup>a</sup> Estimated from aerial surveys between 1975-90 and 1998-present, weir counts between 1991-97.

<sup>b</sup> Closed to fishing.

<sup>c</sup> No data.

<sup>d</sup> Due to low returns, the Chenik Subdistrict was closed to fishing for the entire season.

o salmon catch in numbers of fish by district, Lower  
) - 2000<sup>a</sup>.

Outer	Kamishak	Eastern	Total
16	2,495	426	14,505
485	1,845	470	10,776
92	38,685	950	46,892
54	7,138	594	11,219
41	13,027	536	16,797
3,210	2,024	835	10,327
5,052	9,935	770	18,852
2,481	8,079	1,631	14,354
2	4,471	486	7,946
72	4	5,346	12,089
74	26	7,645	9,297
12	2,337	7,283	19,047
1	1,488	3,136	5,902
119	3	8,924	13,477
993	1,897	10,410	14,673
1,272	6,084	5,192	17,709
96	1	3,932	13,572
63	0	5,344	11,004
45	0	14,365	16,653
1,482	0	3,794	8,033
20	7	8,114	8,909
783	4,977	4,103	14,656
1,151	8,770	1,204	16,376
416	1,184	7,003	12,937
0.22%	0.08%	91.08%	100.00%

Appendix Table 18. Commercial pink salmon catch in numbers of fish by district, Lower Cook Inlet, 1980 - 2000<sup>a</sup>.

Year	Southern	Outer	Kamishak	Eastern	Total
1980	478,019	154,041	101,864	155,779	889,703
1981	1,453,982	1,714,115	66,097	44,989	3,279,183
1982	296,556	67,523	43,871	143,639	551,589
1983	690,254	199,794	1,405	36,154	927,607
1984	336,595	89,085	138,145	136,797	700,622
1985	518,889	618,222	194	92,403	1,229,708
1986	542,521	401,755	423,774	40,243	1,408,293
1987	90,522	23,890	72,684	14,333	201,429
1988	852,382	6,094	61,080	1,740	921,296
1989	987,488	52,677	256,669	92	1,296,926
1990	178,087	191,320	2,448	11,815	383,670
1991	253,962	359,664	47,833	167,250	828,709
1992	417,021	146	2,594	60,007	479,768
1993	692,794	159,159	4,205	10,616	866,774
1994	1,589,709	13,200	33	44,987	1,647,929
1995	2,475,312	192,098	169,054	12,000	2,848,464
1996	444,236	7,199	36	35	451,506
1997	2,685,764	128,373	293	1	2,814,431
1998	1,315,042	102,172	1,776	38,829	1,457,819
1999	1,105,267	32,484	807	1,930	1,140,488
2000	1,070,065	306,555	6,214	4,473	1,387,307
20-Year Avg.	870,220	225,651	69,743	50,682	1,216,296
1980-89 Avg.	624,721	332,720	116,578	66,617	1,140,636
1990-99 Avg.	1,115,719	118,582	22,908	34,747	1,291,956
2000 % of Total	77.13%	22.10%	0.45%	0.32%	100.00%

<sup>a</sup> Data source: ADF&G fish ticket database.

Appendix Table 19. Commercial pink salmon catch in thousands of fish by subdistrict during odd-numbered years, Lower Cook Inlet, 1959 – 1999<sup>a,b</sup>.

Location	1959	1961	1963	1965	1967	1969	1971	1973	1975	1977
Humpy Creek	13.2	34.5	20.6	6.7	6.9	0.6	0	37.3	242.1	26.4
Halibut Cove and Lagoon		33.4	36.9	7.1	33.4	0	11.4	7.2	97.2	16.3
Tutka/Barabara	14.4	106.8	37.7	44.6	31.6	32.9	3.9	20.0	89.2	21.9
Seldovia Bay	4.9	15.1	1.6	19.2	11.7	28.8	27.4	19.4	429.6	47.6
Port Graham Bay	5.3	1.0	2.7	12.4	5.1	2.0	0.9	12.8	16.0	37.6
Dogfish Bay	1.6	0	0	0.1	2.3	0	10.4	0.3	0	5.0
Port Chatham	1.2	0	0.8	0	0	0	26.3	20.6	16.0	1.4
Windy Bay	3.1	2.2	0	5.4	0	0	57.3	68.5	18.1	173.2
Rocky Bay	2.3	0	1.4	0.1	0	0	0.1	0.2	0	11.6
Port Dick Bay	28.2	92.9	19.0	15.3	259.9	51.5	94.6	96.6	90.3	881.7
Nuka Island	33.3	2.0	0.3	0	0.1	0	25.0	5.2	31.4	40.6
E. Nuka Bay							94.6	T	0	8.7
Resurrection Bay	8.4	0	0	0	1.2	0	0	0	0	0
Bruin Bay	0	0	12.3	0.9	2.1	0	11.7	0	0	6.2
Rocky/Ursus Coves	3.7	2.7	44.2	0	13.0	52.8	16.4	7.9	0	0
Iniskin/Cottonwood Bays	1.5	3.3	21.8	0	0.1	26.0	0	4.7	0	0.1
Miscellaneous	3.6	9.5	4.3	3.8	8.1	7.8	12.9	6.7	33.4	15.6
Total	124.7	303.4	203.6	115.6	375.5	202.4	392.9	307.4	1,063.3	1,293.9

Location	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997
Humpy Creek	277.0	239.9	8.1	5.6	0	91.4	0	0.2	13.7	0
Halibut Cove and Lagoon	27.1	11.1	18.8	5.9	30.5	254.4	91.1	100.2	1.9	2.6
China Poot <sup>c</sup>						8.5	135.7	50.6	12.9	14.5
Tutka/Barabara	416.8	1,026.6	616.0	491.2	56.5	632.1	117.6	539.4	2,428.5	2,511.2
Seldovia Bay	140.8	126.4	43.3	3.8	1.2	1.1	0.3	2.4	8.2	12.3
Port Graham Bay	90.0	31.1	2.4	3.7	0.7	0	0	0	0	132.2
Dogfish Bay	7.4	22.9	0.2	0	0	0	0	0	0	0
Port Chatham	174.4	47.6	3.3	7.0	0	9.7	7.5	14.7	17.6	0
Windy Bay	552.7	82.9	0	4.8	0	0	49.1	43.4	111.2	93.2
Rocky Bay	122.2	16.5	1.3	0	0	0	0	0	27.5	0
Port Dick Bay	964.8	1,140.9	140.0	455.6	3.0	0	289.7	26.6	0	0.6
Nuka Island	87.2	244.9	30.2	9.6	0	0	10.6	51.9	6.0	33.3
E. Nuka Bay	0.9	121.0	18.1	141.2	20.9	43.0	T	13.8	21.4	1.3
Resurrection Bay	0	32.6	27.1	74.6	11.8	0	0	0.7	0	0
Bruin Bay	40.3	51.9	0.3	0	1.2	202.8	45.1	0.1	104.8	0.3
Rocky/Ursus Coves	14.4	14.1	0	0	69.4	53.8	0	0	58.0	0
Iniskin/Cottonwood Bays	0.2	0	0.3	0	0.2	0	0	0	0	0
Miscellaneous	74.7	68.8	18.2	26.7	6.0	0.1	82.0	22.8	36.8	12.9
Total	2,990.9	3,279.2	927.6	1,229.7	201.4	1,296.9	828.7	866.8	2,848.5	2,814.4

- continued -

Appendix Table 19. (page 2 of 2)

Location	1999	2001	2003	2005	2007	2009	2011	2013	2015	2017
Humpy Creek	0									
Halibut Cove and Lagoon	3.4									
China Poot <sup>c</sup>	19.6									
Tutka/Barabara	1,080.8									
Seldovia Bay	1.5									
Port Graham Bay	0									
Dogfish Bay	0									
Port Chatham	0									
Windy Bay	0									
Rocky Bay	0									
Port Dick Bay	0									
Nuka Island	0									
E. Nuka Bay	32.5									
Resurrection Bay	0									
Bruin Bay	0.8									
Rocky/Ursus Coves	0									
Iniskin/Cottonwood Bays	0									
Miscellaneous	1.9									
Total	1,140.5									

<sup>a</sup> Data source: ADF&G fish ticket database.

<sup>b</sup> "T" denotes trace, less than 50 fish harvested

<sup>c</sup> China Poot Subdistrict, which includes China Poot, Neptune, and Peterson Bays, was part of Halibut Cove Subdistrict prior to 1988.

salmon catch in thousands of fish by subdistrict during  
years, Lower Cook Inlet, 1960 – 2000<sup>a,b</sup>.

1966	1968	1970	1972	1974	1976	1978
24.6	2.6	85.2	1.7	33.3	3.3	16.3
16.0	41.3	28.9	0.4	2.2	69.8	27.8
53.5	26.9	43.9	5.2	5.5	18.0	167.9
44.1	23.6	29.0	0.2	3.5	3.0	35.8
5.1	23.0	19.6	0.9	2.7	1.3	1.8
7.1	0	9.8	0.3	0	0	0.3
6.7	10.0	1.9	0	0	0	0
20.1	3.4	0.8	0	0	0	0
0	10.8	36.8	0	0	0	0
296.8	55.0	336.5	0	0.6	0	63.6
0	90.2	48.4	0	0	0	0
			0.3	T	0.1	3.3
0	37.4	40.2	18.2	0	35.4	29.7
0	126.2	10.2	0	0	0	0
2.9	18.0	7.5	0	0	0	0.1
0	9.9	3.5	0	0	0.1	0.1
102.3	107.1	14.0	1.5	2.8	5.4	5.9
579.2	585.4	716.2	28.7	50.6	136.4	352.6

1986	1988	1990	1992	1994	1996	1998
116.7	0	0	0	0	0	0
14.0	106.8	91.0	58.4	105.6	2.3	2.4
	5.4	46.1	35.7	24.2	8.2	3.3
400.2	723.9	37.4	320.9	1,454.5	428.2	1,300.6
2.8	5.5	3.6	1.9	5.4	4.1	7.4
4.7	0.1	0	0	0	0.8	0.6
0	0	0	0	0	0	0
0	0	22.1	0	0	0	9.4
0	0	0	0	0	0	0
0	0	0	0	0	0	35.0
304.0	5.9	169.1	0.1	1.6	0	2.4
0	0	0	0	0	0	41.1
97.8	0.1	0.2	0	11.6	7.2	14.2
36.5	0.5	0	0	T	T	0
349.7	5.0	0.4	1.9	T	T	1.8
71.1	49.9	0	0.3	0	0	0
0.2	1.3	0	T	0	0	0
10.6	16.9	13.8	60.6	45.0	0.7	39.6
1,408.3	921.3	383.7	479.8	1,647.9	451.5	1,457.8

- continued -



Appendix Table 20. (page 2 of 2)

Location	2000	2002	2004	2006	2008	2010	2012	2014	2016	2018
Humpy Creek	0									
Halibut Cove and Lagoon	0.5									
China Poot <sup>c</sup>	4.0									
Tutka/Barabara	1,055.4									
Seldovia Bay	10.2									
Port Graham Bay	0									
Dogfish Bay	0									
Port Chatham	0									
Windy Bay	0									
Rocky Bay	0									
Port Dick Bay	306.6									
Nuka Island	0									
E. Nuka Bay	0.3									
Resurrection Bay	0									
Bruin Bay	5.5									
Rocky/Ursus Coves	0									
Iniskin/Cottonwood Bays	0									
Miscellaneous	4.8									
Total	1,387.3									

<sup>a</sup> Data source: ADF&G fish ticket database.

<sup>b</sup> "T" denotes trace, less than 50 fish harvested

<sup>c</sup> China Poot Subdistrict, which includes China Poot, Neptune, and Peterson Bays, was part of Halibut Cove Subdistrict prior to 1988.

um salmon catch in numbers of fish by district, Lower  
30 - 2000<sup>a</sup>.

Outer	Kamishak	Eastern	Total
32,246	35,921	720	73,492
238,393	73,501	3,279	336,093
63,075	108,946	7,698	198,185
27,203	142,901	7,934	192,319
3,204	70,736	10,535	92,540
11,844	8,139	5,144	30,640
11,701	61,670	3,757	82,688
28,663	108,412	14,913	157,018
71,202	218,299	24,668	321,911
43	7,809	312	11,305
614	3,597	307	6,951
14,337	7,853	80	24,232
181	20,051	86	22,203
970	600	9	4,367
32	14	2,792	5,469
474	10,302	330	15,636
3	27	223	3,764
1,575	7	66	5,908
611	29	51	4,647
2,062	23	1,232	7,941
302	66,072	1,540	73,254
25,422	43,942	4,207	79,865
48,757	83,633	7,896	149,619
2,086	4,250	518	10,112
0.41%	90.20%	2.10%	100.00%

Appendix Table 22. Commercial chum salmon catch in thousands of fish by subdistrict, Lower Cook Inlet, 1959 – 2000<sup>a,b</sup>.

Location	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
Tutka Bay	0.1	2.4	1.8	2.9	2.4	5.6	1.1	3.9	4.0	1.3	0.7	1.6	0.5
Port Graham	2.3	1.8	0.5	4.0	3.8	2.1	0.9	5.3	3.0	2.3	1.3	4.8	2.0
Dogfish Bay	4.9	0.4	0.1	0	0.2	0	0	7.0	15.3	0.1	0	50.9	114.5
Port Chatham	1.0	2.5	0	2.8	4.3	5.2	0	17.8	0	1.0	0	0.1	2.4
Rocky/Windy Bays	14.9	6.4	2.2	8.5	0.3	33.8	8.1	1.7	0	0.5	0	39.4	1.4
Port Dick	42.4	51.0	36.8	112.0	110.8	227.4	14.2	60.9	36.0	10.9	5.4	41.2	0.7
Nuka Bay	1.7	8.4	1.7	0.5	1.5	0	0	0	1.5	6.9	0	5.9	0.1
Resurrection Bay	0.1	0.5	0	0	0	0	0	0	0.1	0.7	0	0.6	0.4
Douglas River	0.2	0	0	0	0	0	0	0	0	0	0	0	0
Kamishak River	0	0	0	0	0	0	0	0	0	3.7	0.4	0	0
McNeil River	0	0.4	0	0	0	2.7	0.90	0	0.4	8.3	4.4	1.9	0
Bruin Bay	0	0.3	0.5	0	0.1	0	0.4	0	1.0	7.5	0	12.8	1.6
Ursus/Rocky Coves	8.5	8.6	1.8	1.1	2.8	1.2	0	4.0	2.9	1.0	3.6	8.9	10.3
Cottonwood/Iniskin	12.1	33.4	10.2	41.7	10.9	10.9	0	0	19.0	25.5	44.4	71.9	14.5
Miscellaneous	22.6	0	0	5.8	1.4	1.4	2.5	28.5	2.2	5.4	1.0	2.4	0.2
Totals	110.8	116.1	55.6	179.3	138.5	323.3	28.1	129.1	85.4	75.1	61.2	242.4	148.6

Location	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Tutka Bay	1.3	0.8	1.4	2.0	0.9	0.8	2.6	2.7	1.8	7.9	8.3	9.9	3.4
Port Graham	3.2	2.6	1.0	2.2	0.5	5.0	2.4	4.3	2.5	11.2	7.4	1.7	3.6
Dogfish Bay	41.1	0.4	0	0	0	9.4	0	8.5	2.1	71.8	15.6	2.8	1.1
Port Chatham	0	0.4	0	0.6	0	0.1	0	1.7	1.3	59.6	16.2	2.1	0
Rocky/Windy Bays	0	0.9	0	0.3	0	17.7	0	76.7	2.1	7.4	0	3.2	0
Port Dick	0	33.4	8.1	6.8	0	25.6	10.3	79.0	19.0	85.8	30.3	18.0	1.9
Nuka Bay	2.3	40.8	3.9	3.6	0.4	17.4	0.4	14.7	7.8	3.8	0.9	0.8	0.2
Resurrection Bay	0.7	0	0	0	0	0	0.1	0	0.7	2.4	7.7	6.9	3.0
Douglas River	0	0	0	0.1	7.1	4.0	2.9	0.7	10.1	46.7	37.1	27.2	9.2
Kamishak River	2.4	0	1.8	0	10.5	0	23.9	17.8	2.8	8.6	9.2	23.9	16.2
McNeil River	2.3	0	2.0	0	16.9	38.5	4.9	6.5	6.3	11.6	32.6	67.9	12.0
Bruin Bay	1.8	0	0.7	0	0	0	0	4.0	11.0	1.7	1.3	2.6	5.9
Ursus/Rocky Coves	0.2	5.7	0	2.0	2.8	7.8	1.9	0.5	0.3	1.5	13.5	0	3.7
Cottonwood/Iniskin	19.7	29.9	0	2.8	11.5	15.3	14.9	0.2	5.4	3.5	21.6	21.4	23.0
Miscellaneous	0.5	0.6	0.3	1.2	0.2	4.2	9.2	1.2	0.4	2.6	3.5	3.9	9.3
Totals	75.5	115.5	19.2	21.6	50.8	145.8	73.5	218.5	73.5	336.1	198.0	192.3	92.5

Location	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Tutka Bay	3.2	3.9	3.9	4.7	2.5	1.5	0.8	0.6	0.9	0.8	1.6	1.0	1.1
Port Graham	1.3	0.8	0.4	1.2	0	0	0	0	0	0	0.7	0.7	2.0
Dogfish Bay	0	0	0	0	0	0	0	0	0	0	0	0	0
Port Chatham	1.3	0	0	0	0	0.1	0.1	0	0.1	0	T	0	0
Rocky/Windy Bays	0	0	0	0	0	0	0.5	0	0.1	0	0.4	0	1.6
Port Dick	9.6	10.4	27.1	64.4	0	0.5	13.7	0.2	0.7	T	0	0	0
Nuka Bay	0.8	1.3	1.6	6.8	0	T	T	0	T	T	0.1	T	T
Resurrection Bay	3.0	3.5	13.9	23.9	0	0	0	0	0	2.5	0.3	0.2	0
Douglas River	8.0	11.6	23.7	24.8	0	0.1	3.0	12.5	T	T	0.7	0	0
Kamishak River	0.1	0.1	24.6	26.7	0	T	0.7	1.5	0	0	0.1	0	0
McNeil River	0	13.7	32.9	104.0	0.1	0.1	0.1	2.0	0.4	0	0	0	T
Bruin Bay	0	5.4	0.1	2.8	4.4	0.1	2.6	0.8	T	0	4.9	T	T
Ursus/Rocky Coves	0	22.1	17.2	20.7	3.4	0	0	2.7	0	0	2.2	0	0
Cottonwood/Iniskin	0	8.8	9.7	39.2	0	0	1.0	0.2	0	0	2.3	0	0
Miscellaneous	3.3	1.1	1.9	2.7	0.9	4.7	1.7	1.6	2.1	2.1	2.3	1.9	1.2
Totals	30.6	82.7	157.0	321.9	11.3	7.0	24.2	22.2	4.4	5.5	15.6	3.8	5.9

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2005	2006	2007	2008	2009	2010
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Appendix Table 23. Estimated sockeye salmon escapements in thousands of fish for the major spawning systems of Lower Cook Inlet, 1980 - 2000<sup>a</sup>.

Year	English Bay	Delight Lake	Desire Lake	Bear Lake <sup>b,c</sup>	Aialik Lake	Mikfik Lake	Chenik Lake	Amakd. Creek	Kamish. Rivers	Douglas River	Total
1980	12.0	10.0	17.0	1.5	6.6	6.5	3.5	2.6	<sup>d</sup>	0.4	60.1
1981	10.5	7.3	12.0	0.7	1.8	5.3	2.5	1.9	<sup>d</sup>	0.2	42.2
1982	20.0	25.0	18.0	0.5	22.4	35.0	8.0	3.2	1.0	4.2	137.3
1983	12.0	7.0	12.0	0.7	20.0	7.0	11.0	1.2	0.4	0.5	71.8
1984	11.1	10.5	15.0	0.5	22.0	6.0	13.0	1.4	0.1	0.0	79.6
1985	5.0	26.0	18.0	1.1	8.0	20.0	3.5	0.9	0.8	0.0	83.3
1986	2.8	13.0	10.0	0.8	7.6	7.8	7.0	1.9	5.0	0.2	56.1
1987	7.0	10.5	13.4	0.3	9.2	9.0	10.0	1.1	<sup>d</sup>	0.1	60.6
1988	2.5	1.2	9.0	0.1	13.0	10.1	9.0	0.4	0.5	0.0	45.8
1989	4.5	7.7	9.0	0.1	6.5	11.5	12.0 <sup>c</sup>	1.2	0.5	0.6	53.6
1990	3.3	5.2	9.5	0.1	5.7	8.8	17.0	1.8	0.2	0.6	52.2
1991	7.0	4.1	8.2	0.7	3.7	9.7	10.2 <sup>c</sup>	1.9	0.7	<sup>d</sup>	46.2
1992	6.4	5.9	11.9	1.9	2.5	7.8	9.3 <sup>c</sup>	1.9	4.9	0.2	52.7
1993	8.9	5.6	11.0	5.0	3.0	6.4	4.0 <sup>c</sup>	2.0	4.1	<sup>d</sup>	50.0
1994	13.8 <sup>c</sup>	5.6	10.5	8.6	7.3	9.5	0.8 <sup>c</sup>	0.8	<sup>d</sup>	<sup>d</sup>	56.9
1995	22.5 <sup>c</sup>	15.8	15.8	8.3	2.6	10.1	1.1 <sup>c</sup>	2.4	<sup>d</sup>	<sup>d</sup>	78.6
1996	12.4 <sup>c</sup>	7.7	9.4	8.0	3.5	10.5	3.0 <sup>c</sup>	2.9	1.8	0.6	55.8
1997	15.4 <sup>c</sup>	27.8 <sup>c</sup>	14.7 <sup>c</sup>	7.9	11.4	8.5	2.3 <sup>c</sup>	1.5	<sup>d</sup>	<sup>d</sup>	89.5
1998	15.4 <sup>c</sup>	9.2 <sup>c</sup>	7.9	8.4	4.9	12.6	1.9	4.1	<sup>d</sup>	<sup>d</sup>	63.1
1999	15.8 <sup>c</sup>	17.0 <sup>c</sup>	14.6	7.8	3.8	15.7	2.9	8.8	2.2	0.4	89.0
2000	12.6 <sup>c</sup>	12.3	4.0	11.9	4.3	10.9	4.8	3.3	1.5	0.4	66.0
20-year Average	10.4	11.1	12.3	3.2	8.3	10.7	6.6	2.2	1.7	0.6	67.0
1980-89 Average	8.7	11.8	13.3	0.6	11.7	11.8	8.0	1.6	1.2	0.6	69.4
1990-99 Average	12.0	10.4	11.4	5.7	4.8	9.6	5.3	2.8	2.3	0.5	64.6
Esc. Goal	15	10	10	5-8	2.5-5	5-7	10	1	<sup>f</sup>	<sup>f</sup>	58.5-66

<sup>a</sup> Unless otherwise noted, estimated escapements are either peak aerial survey counts or adjusted aerial survey counts based on survey conditions and time of surveys.

<sup>b</sup> Limited by Bear Lake Management Plan since 1971.

<sup>c</sup> Weir counts.

<sup>d</sup> Insufficient survey data to generate escapement estimate.

<sup>e</sup> Combination of weir and video counts.

<sup>f</sup> No formal escapement goal established.

Appendix Table 24. Estimated pink salmon escapements in thousands of fish for the major spawning systems of Lower Cook Inlet, 1960 – 2000<sup>a</sup>.

Location	Y E A R										
	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Humpy Creek	10.0	22.6	56.0	34.7	18.5	28.0	30.0	25.0	24.7	5.4	55.2
China Poot Creek	9.0	2.0	26.0	---	---	---	---	2.5	6.0	0.2	1.5
Tutka Lagoon Creek	15.0	15.0	30.0	10.0	20.0	20.0	12.0	7.0	7.9	6.5	6.5
Barabara Creek	2.0	0.1	1.5	0.1	---	---	5.0	---	2.0	0.9	0.4
Seldovia River	25.0	25.0	50.0	13.0	60.0	30.0	86.0	55.0	53.2	60.0	23.0
Port Graham River	15.0	5.0	50.0	2.0	16.0	1.5	24.0	2.0	24.4	4.0	16.6
Dogfish Lagoon	2.0	---	3.0	---	---	---	---	---	---	---	---
Port Chatham Creeks	4.0	7.0	7.0	---	---	---	10.0	---	---	---	3.0
Windy Right Creek	8.0	10.0	12.5	4.9	6.2	2.0	7.0	6.0	2.8	3.2	2.1
Windy Left Creek	8.0	5.0	12.5	4.5	7.7	10.0	7.0	6.0	6.9	23.0	13.0
Rocky River	130.0	2.0	200.0	12.0	80.0	0.3	44.0	1.0	43.1	1.0	32.0
Port Dick Creek	35.0	14.0	40.0	16.0	31.5	50.0	35.0	20.0	29.0	12.0	34.5
Island Creek	23.2	2.0	15.0	3.6	30.0	0.5	7.0	0.5	4.3	0.1	5.5
South Nuka Island Creek	20.0	2.0	22.0	0.1	10.0	---	10.0	---	10.0	3.0	11.0
Desire Lake Creek	---	---	18.0	---	1.3	---	---	---	---	---	---
James Lagoon	---	---	---	---	---	---	---	---	---	---	---
Aialik Lagoon	---	---	25.0	0.3	---	---	2.0	---	---	---	---
Bear Creek	1.4	---	3.1	---	6.4	---	---	---	3.1	---	---
Salmon Creek	---	---	---	---	---	---	---	---	---	---	---
Thumb Cove	---	---	---	---	---	---	---	---	---	---	---
Humpy Cove	---	---	---	---	---	---	---	---	---	---	---
Tonsina Creek	---	---	---	---	---	---	---	---	2.9	0.1	---
Big Kamishak River	---	---	100.0	75.0	75.0	---	13.0	---	---	---	---
Little Kamishak River	---	---	100.0	24.0	---	---	28.0	3.5	---	0.5	2.0
Amakdedori Creek	60.0	---	80.0	---	10.0	---	8.0	---	---	1.0	13.0
Bruin Bay River	18.0	---	300.0	25.0	---	---	20.0	0.5	---	5.0	40.0
Sunday Creek	1.5	---	5.0	2.0	---	---	20.0	---	---	1.0	2.0
Brown's Peak Creek	---	---	25.0	10.0	20.0	10.0	11.0	---	---	2.0	---
Totals	387.1	111.7	1,181.6	237.2	392.6	152.3	379.0	129.0	220.3	128.9	261.3

-continued-

Appendix Table 24. (page 2 of 4)

Location	Y E A R										
	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Humpy Creek	45.0	13.8	36.9	17.4	64.0	27.2	86.0	46.1	200.0	64.4	115.0
China Poot Creek	2.1	1.0	6.0	5.2	21.6	2.0	3.9	11.2	20.6	12.3	5.0
Tutka Lagoon Creek	16.7	1.5	6.5	2.6	17.6	11.5	14.0	15.0	10.6	17.3	21.1
Barabara Creek	4.0	0.6	---	0.2	22.7	0.2	5.7	1.4	10.0	5.8	16.8
Seldovia River	31.1	5.8	14.5	13.7	36.2	25.6	35.7	24.6	43.7	65.5	62.7
Port Graham River	13.2	2.4	7.0	2.8	27.3	6.5	20.6	6.7	32.7	40.2	18.4
Dogfish Lagoon	0.3	---	1.0	---	2.3	---	8.1	0.6	7.3	0.3	2.6
Port Chatham Creeks	15.5	1.0	5.0	0.2	7.7	---	14.2	0.3	20.8	7.7	11.2
Windy Right Creek	13.0	0.1	4.6	0.1	18.7	0.2	11.1	0.3	10.4	3.3	4.7
Windy Left Creek	35.4	0.4	12.9	0.1	9.7	0.2	47.3	1.1	74.8	10.9	31.3
Rocky River	1.6	8.2	2.0	1.5	4.4	2.7	36.7	8.2	85.0	6.4	25.0
Port Dick Creek	97.8	10.0	26.4	1.5	62.8	12.7	109.3	44.9	116.0	56.1	106.0
Island Creek	0.1	1.7	0.5	0.5	0.1	---	0.6	0.4	0.6	2.2	25.0
South Nuka Island Creek	14.0	0.3	16.0	---	28.0	---	12.0	---	15.0	0.3	16.0
Desire Lake Creek	30.0	0.3	3.0	---	0.4	0.6	0.8	1.0	3.0	16.0	5.0
James Lagoon	---	---	---	---	---	---	---	---	---	4.6	14.0
Aialik Lagoon	---	---	---	0.1	---	0.4	---	---	---	---	---
Bear Creek	---	0.5	---	4.9	---	10.0	---	7.8	---	13.3	0.4
Salmon Creek	---	---	---	---	---	16.9	---	11.0	---	15.5	0.1
Thumb Cove	---	---	---	1.1	---	2.0	---	2.0	---	1.2	1.0
Humpy Cove	---	---	---	0.6	---	1.4	---	0.9	---	5.7	0.4
Tonsina Creek	---	---	---	1.4	---	5.7	---	1.5	---	0.7	0.2
Big Kamishak River	---	---	15.0	1.0	---	8.0	---	12.0	10.0	2.0	---
Little Kamishak River	---	---	13.0	---	---	6.0	---	0.4	3.5	0.6	---
Amakdedori Creek	---	0.2	3.0	1.0	5.0	---	---	0.9	6.0	3.8	1.5
Bruin Bay River	22.0	2.5	2.0	0.6	20.0	13.5	60.0	33.0	200.0	400.0	95.0
Sunday Creek	43.0	2.0	5.0	0.1	20.0	0.3	9.0	0.2	12.0	5.2	14.2
Brown's Peak Creek	8.0	1.2	3.2	0.1	10.0	1.2	13.0	0.9	15.0	2.3	17.7
Totals	392.8	53.5	183.5	56.7	378.5	154.8	488.0	232.4	897.0	763.6	610.3

-continued-

	Y E A R							
	1985	1986	1987	1988	1989	1990	1991	1992
	117.0	49.7	26.6	21.4	93.0	27.0	17.4	14.9
	1.9	11.5	3.1	3.9	8.5	4.2	2.6	4.1
	14.0	13.4	4.8	11.2	11.9	38.5	16.8	26.7
	1.6	1.8	0.3	0.7	4.5	3.9	10.9	2.2
	22.8	28.2	7.6	16.9	26.2	27.8	30.0	14.7
	26.3	17.5	3.8	7.9	19.1	20.1	29.0	5.4
	0.2	0.4	1.2	0.3	0.2	7.1	9.3	c
	8.9	11.5	10.2	21.0	31.7	27.8	23.8	4.3
	5.4	2.5	2.0	1.3	6.6	7.1	20.7	3.9
	8.9	2.2	5.6	3.4	25.2	7.5	34.5	8.2
	12.1	12.0	4.5	5.4	10.3	18.0	26.1	25.4
	65.3	41.6	4.5	12.0	55.4	41.7	54.2	6.9
	27.9	16.6	0.1	7.2	6.7	25.0	24.4	12.5
	3.6	7.0	2.8	1.2	7.3	13.3	16.4	6.1
	62.5	32.0	11.0	2.5	47.0	1.0	1.3	0.4
	9.0	6.6	1.1	1.7	4.9	3.8	4.4	0.4
	9.4	6.0	1.5	0.7	0.8	---	---	c
	4.1	14.0	3.5	0.2	1.7	4.4	15.4 <sup>b</sup>	2.3
	2.1	8.3	1.7	0.1	1.6	---	b	5.3
	14.5	4.0	2.7	0.3	4.2	---	3.4	0.4
	5.0	0.9	0.3	0.4	1.0	3.8	---	c
	48.2	11.2	3.4	0.1	0.5	1.2	0.3	c
	---	5.0	---	1.0	---	---	---	c
	1.6	2.0	---	0.5	---	---	0.9	c
	1.0	6.0	0.4	1.0	2.0	0.1	0.7	3.2
	3.5	1,200.0	24.0	29.0	350.0	19.0	74.9	3.2
	11.4	109.0	29.7	18.0	103.0	2.8	20.9	2.9
	7.0	28.0	40.2	17.0	120.0	1.0	16.7	5.0
	2	495.2	1,648.9	196.6	186.3	943.3	306.1	455.0
								158.4

-continued-



Appendix Table 24. (page 4 of 4)

Location	Y E A R								1960-99	Escapement
	1993	1994	1995	1996	1997	1998	1999	2000	Average	Goal
Humpy Creek	36.0	14.1	89.3	9.0	78.3	17.5	12.8	22.4	46.8	25-50
China Poot Creek	1.6	5.7	2.0	2.8	2.8	5.7	0.7	7.5	6.2	5
Tutka Lagoon Creek	27.4	14.5	15.9	3.5	45.0	17.5	27.9	19.0	15.4	6-10
Barabara Creek	11.9	4.5	10.8	2.4	12.5	2.8	3.9	5.6	4.8	18-24
Seldovia River	43.4	24.4	48.5	17.8	39.1	31.5	12.2	53.5	32.8	25-35
Port Graham River	12.8	7.6	10.0	7.0	12.5	12.6	9.7	15.6	14.6	20-40
Dogfish Lagoon	0.3	1.3	13.3	2.3	20.0	6.7	12.4	11.1	4.0	-
Port Chatham Creeks	22.2	3.3	14.0	8.6	42.7	22.2	10.7	16.7	11.8	10-15
Windy Right Creek	13.6	2.2	11.4	9.9	13.9	19.5	5.2	23.0	6.7	10
Windy Left Creek	25.9	3.0	31.6	2.5	64.6	12.9	24.0	20.1	15.2	30-50
Rocky River	70.0	17.1	56.3	80.1	48.1	165.0	17.2	131.6	33.2	50
Port Dick Creek	37.0	18.1	6.6	23.2	36.9	59.1	8.3	122.9 <sup>d</sup>	39.0	20-100
Island Creek	12.1	28.3	10.6	40.1	71.1	83.6	8.6	70.8	14.4	12-18
South Nuka Island Creek	34.3	1.4	6.2	6.8	9.3	14.0	2.4	13.6	9.9	10
Desire Lake Creek	19.3	---	---	---	6.2	6.2	6.8	21.1	11.8	10-20
James Lagoon	3.3	0.8	0.6	---	---	---	---	3.9	4.4	5-10
Aialik Lagoon	---	---	1.1	---	---	0.4	0.9	---	3.8	5
Bear Creek	6.6 <sup>b</sup>	34.8 <sup>b</sup>	38.6 <sup>b</sup>	8.0 <sup>b</sup>	6.3 <sup>b</sup>	13.2 <sup>b</sup>	7.8 <sup>b</sup>	35.6 <sup>b</sup>	8.2	5
Salmon Creek	<sup>b</sup>	<sup>b</sup>	<sup>b</sup>	<sup>b</sup>	<sup>b</sup>	<sup>b</sup>	<sup>b</sup>	<sup>b</sup>	7.3	10
Thumb Cove	5.5	10.8	9.3	9.5	4.7	21.0	9.2	8.5	5.6	4
Humpy Cove	0.9	2.2	1.8	3.4	2.2	1.2	4.0	1.7	2.1	2
Tonsina Creek	3.2	7.0	0.5	0.4	0.4	2.3	0.5	6.6	4.6	5
Big Kamishak River	---	---	---	16.7	---	2.0	5.7	14.9	21.7	20
Little Kamishak River	---	---	---	---	---	---	4.2	13.0	10.7	20
Amakdedori Creek	1.7	0.7	4.5	---	1.7	---	---	---	8.0	5
Bruin Bay River	86.4	5.9	307.3	27.5	162.7	134.9	2.9	176.7	107.7	25-50
Sunday Creek	57.8	3.1	95.9	2.8	52.5	24.0	5.3	39.8	20.3	10
Brown's Peak Creek	41.6	1.3	96.7	2.4	42.3	7.9	2.6	9.8	16.9	10
Totals	574.8	212.1	882.8	286.7	775.8	683.7	205.9	865.0	429.0	377-593

<sup>a</sup> Escapement estimates are derived from periodic ground surveys with stream life factors applied, or from periodic aerial surveys. Aerial survey estimates after 1990 incorporate stream life factors; prior to 1990, aerial estimates are peak aerial survey counts adjusted for survey conditions and time of surveys.

<sup>b</sup> Escapement figure for Bear Creek represents the combined escapement for Bear and Salmon Creeks.

<sup>c</sup> Insufficient data for escapement estimates.

<sup>d</sup> Port Dick Creek counts derived from aerial data in 2000. Other methods also used to generate escapement estimates included ground surveys (91,795) and weir counts (142,450).

salmon escapements in thousands of fish for the major  
s of Lower Cook Inlet, 1980 - 2000<sup>a</sup>.

Big Kamishak	Little Kamishak	McNeil River	Bruin Bay	Ursus Cove	Cotton- wood	Iniskin Bay	Total
10.0	13.0	8.0	15.0	8.0	4.2	9.3	110.7
11.0	6.0	30.0	10.0	10.0	9.0	9.0	135.4
25.0	18.0	25.0	10.0	9.0	7.0	12.8	131.0
25.0	25.0	48.0	5.5	7.7	8.3	12.0	183.4
19.0	12.0	21.0	8.0	7.0	6.5	9.8	125.8
6.0	4.5	9.5	2.0	3.0	3.0	5.0	51.0
24.0	17.0	22.0	2.0	11.0	11.0	5.9	108.3
12.0	18.0	26.0	10.0	9.9	17.0	9.1	125.0
15.0	13.0	49.0	7.0	9.4	16.0	9.5	147.6
30.0	12.0	34.0	8.0	6.3	8.0	5.9	116.6
2.5	7.9	8.0	4.0	3.8	4.3	8.4	46.7
8.7	8.4	10.0	6.0	1.3	7.7	8.3	79.3
4.5	7.1	19.2	8.5	1.7	6.1	3.4	66.5
9.1	6.3	17.4	6.0	7.7	12.0	8.0	78.8
---	9.0	15.0	6.1	6.2	10.2	18.9	96.1
b	b	14.4	6.6	11.1	12.0	22.7	90.9
11.1	4.4	16.1	14.9	7.6	16.1	7.8	99.6
---	---	27.5	8.8	6.2	5.6	15.4	88.5
7.1	9.7	23.5	9.4	4.6	2.3	18.6	96.0
11.6	8.9	13.5	10.3	21.0	12.0	23.3	150.7
45.3	26.9	18.6	13.6	41.7	24.1	23.6	244.5
13.6	11.1	21.9	7.9	7.6	8.9	11.2	109.8
17.7	13.9	27.3	7.8	8.1	9.0	8.8	123.5
7.8	7.7	16.5	8.1	7.1	8.8	13.5	93.6
20	20	20-40	5-10	5-10	10	10	133-177

dic ground surveys with stream life factors applied, or from periodic  
1990 incorporate stream life factors; prior to 1990, aerial estimates  
vey conditions and time of surveys.  
nates.

Appendix Table 26. Personal use/subsistence set gillnet salmon catch in numbers of fish by species and effort, Southern District, Lower Cook Inlet, 1969 – 2000<sup>a</sup>.

Year	Permits			Permits		Total			Catch			
	Permits Issued	Returned		Did Fish	Not Fished	Chinook	Sockeye	Coho	Pink	Chum	Other	Total
		Number	%									
1969	47	44	93.6	35	9	0	9	752	38	0	17	816
1970	78	73	93.6	55	18	0	12	1,179	143	13	39	1,386
1971	112	95	84.8	53	42	2	16	1,549	44	7	20	1,638
1972	135	105	77.8	64	41	1	11	975	48	69	19	1,123
1973	143	128	89.5	82	46	0	18	1,304	84	40	9	1,455
1974	148	118	79.7	52	66	0	16	376	43	77	27	539
1975	292	276	94.5	221	55	4	47	1,960	632	61	95	2,799
1976	242	221	91.3	138	83	16	46	1,962	1,513	56	75	3,668
1977	197	179	90.9	137	42	12	46	2,216	639	119	84	3,116
1978	311	264	84.9	151	113	4	35	2,482	595	34	89	3,239
1979	437	401	91.8	238	163	6	37	2,118	2,251	41	130	4,583
1980	533	494	92.7	299	195	43	32	3,491	1,021	25	153 <sup>b</sup>	4,765
1981	384	374	97.4	274	100	25	64	4,314	732	89	100	5,324
1982	395	378	95.7	307	71	39	46	7,303	955	123	8	8,474
1983	360	328	91.1	210	118	4	21	2,525	330	40	2	2,922
1984	390	346	88.7	219	127	4	25	3,666	821	87	25	4,628
1985	316	302	95.6	205	97	5	43	3,372	166	35	3	3,624
1986	338	310	91.7	247	63	7	68	3,831	3,132	56	0	7,094
1987	361	338	93.6	249	89	5	50	3,977	279	61	0	4,372
1988	438	404	92.2	287	117	14	60	4,877	1,422	75	0	6,448
1989	466	452	97.0	332	120	41	156	7,215	882	53	49	8,396
1990	578	543	93.9	420	123	12	200	8,323	1,846	69	0	10,450
1991	472	459	97.2	295	164	8	47	4,931	366	23	0	5,375
1992	365	350	95.9	239	111	5	63	2,277	643	21	0	3,009
1993	326	317	97.2	215	102	6	44	1,992	463	18	0	2,523
1994	286	284	99.3	224	60	66	80	4,097	1,178	18	0	5,439
1995	235	232	98.7	178	54	118	108	2,916	343	7	0	3,492
1996	299	293	98.0	213	80	302	102	3,347	1,022	24	0	4,797
1997	276	264	95.7	185	79	383	191	1,814	252	12	0	2,652
1998	227	214	94.3	142	72	135	20	1,461	167	5	0	1,788
1999	146	141	96.6	111	30	276	119	1,803	168	3	0	2,369
2000	213	206	96.7	151	55	104	28	2,064	304	4	0	2,504
69-99												
Avg.	299	282	94.4	197	85	50	60	3,058	715	45	27	3,955

<sup>a</sup> Figures after 1991 include information from both returned permits and inseason oral reports.

<sup>b</sup> Steelhead trout (*Onchorhynchus mykiss*).

ersonal use/subsistence salmon gillnet fishermen in the  
ict of Lower Cook Inlet (excluding the Port  
ek subsistence fishery and the Seldovia subsistence  
of residence, 1980 - 2000.

Anchor Pt./ Ninilchik		Seldovia		Pt. Graham/ Nanwalek		Kenai/ Soldotna		Other		Total Permits Issued
No.	%	No.	%	No.	%	No.	%	No.	%	
80	15.0	7	1.3	0	0.0	42	7.9	13	2.4	535
37	9.6	3	0.8	1	0.3	14	3.6	4	1.0	384
44	11.1	0	0.0	0	0.0	7	1.8	21	5.3	395
33	9.6	8	2.3	0	0.0	0	0.0	8	2.3	343
62	16.8	5	1.4	1	0.3	5	1.4	4	1.1	369
33	10.4	6	1.9	0	0.0	2	0.6	3	0.9	316
29	8.6	1	0.3	0	0.0	1	0.3	5	1.5	338
37	10.2	7	1.9	0	0.0	2	0.6	3	0.8	361
43	9.8	6	1.4	0	0.0	10	2.3	0	0.0	438
51	10.9	8	1.7	0	0.0	6	1.3	12	2.6	466
65	11.2	12	2.1	0	0.0	6	1.0	13	2.2	578
41	8.7	6	1.3	0	0.0	4	0.8	2	0.4	472
32	8.8	3	0.8	0	0.0	1	0.3	1	0.3	365
44	13.5	3	0.9	0	0.0	5	1.5	2	0.6	326
21	7.3	1	0.3	0	0.0	1	0.3	4	1.4	286
20	8.5	1	0.4	0	0.0	0	0.0	1	0.4	235
26	8.7	3	1.0	1	0.3	2	0.7	3	1.0	299
20	7.2	4	1.4	0	0.0	1	0.4	3	1.1	276
24	10.6	5	2.2	0	0.0	2	0.9	1	0.4	227
23	15.8	3	2.1	0	0.0	4	2.7	1	0.7	146
21	9.9	4	1.9	0	0.0	1	0.5	2	0.9	213
38	10.7	5	1.3	0	0.0	6	1.6	5	1.5	358
45	11.4	5	1.3	0	0.1	9	2.3	7	1.9	394
32	9.8	4	1.3	0	0.0	3	0.8	3	1.0	321

u Valley, Eagle River, Chugiak, and/or Fort Richardson.

Appendix Table 28. Subsistence salmon catch in numbers of fish by species for the village of Port Graham, Lower Cook Inlet, 1981 - 2000<sup>a</sup>.

Year	S A L M O N H A R V E S T						Dolly Varden	Permits Reporting
	Chinook	Sockeye	Coho	Pink	Chum	Total		
1981	41	1,521	450	298	111	2,421	183	33
1982	107	820	602	858	183	2,570	15	34
1983	67	1,026	431	174	95	1,793	1	30
1984	27	2,037	125	269	6	2,464	0	23
1985	141	481	91	32	24	769	0	23
1986	123	274	179	237	13	826	12	27
1987	20	219	575	230	70	1,114	20	33
1988	96	411	459	542	75	1,583	18	27
1989	51	94	460	640	58	1,303	159	20
1990	211	524	803	1013	102	2,653	666	32
1991	155	58	541	1494	185	2,433	257	33
1992	129	98	475	745	178	1,625	398	36
1993	253	154	346	997	135	1,885	214	31
1994	273	260	859	866	461	2,719	1,133	42
1995	486	379	369	786	376	2,396	66	49 <sup>b</sup>
1996	255	684	341	312	251	1,843	161	48
1997	202	324	203	497	152	1,378	57	25
1998	164	271	243	459	240	1,377	20	16
1999	383	360	427	150	214	1,534	64	21
2000 <sup>c</sup>								
1981-1999								
Average	168	526	420	558	154	1,826	181	31

<sup>a</sup> Data source: ADF&G, Subsistence Division, data files..

<sup>b</sup> Salmon totals and permits include 3 reports from non-residents of Port Graham Village.

<sup>c</sup> Information for 2000 was unavailable at time of publishing.

ion catch in numbers of fish by species for the village of  
erly English Bay), Lower Cook Inlet, 1981 – 2000<sup>a</sup>.

H A R V E S T				Dolly	Permits
Coho	Pink	Chum	Total	Varden	Reporting
375	576	66	2,263	874	24
891	2,074	37	4,553	75	27
40	13	0	1,507	0	16
385	404	0	2,032	0	1
530	313	2	1,546	0	1
302	825	1	1,503	144	17
339	484	44	1,550	20	22
385	1,214	35	2,252	70	21
695	855	16	1,629	523	24
614	1,947	49	3,302	2,833	28
512	3,093	36	5,279	848	30
675	676	58	1,917	1,331	35
567	1666	122	3,373	577	25
511	1113	43	2,264	473	28
169	487	0	2,171	465	38
598	437	25	2,175	221	27
0	14	1	16	0	1
0	0	0	23	31	3
320	1,873	890	6,940	631	32
521	951	75	2,437	480	21

iles.  
of publishing.

Appendix Table 30. Salmon set gillnet catch in numbers of fish by species and permit/effort information for the Seldovia area subsistence fishery, Lower Cook Inlet, 1996 - 2000.

YEAR	NUMBER OF PERMITS				NUMBER OF SALMON HARVESTED					
	Issued	Returned	Fished	Not Fished	Chinook	Sockeye	Coho	Pink	Chum	Total
<b>Early Season: April – May<sup>a</sup></b>										
1996	41	41	13	28	51	7	0	0	0	58
1997	19	16	12	4	44	19	0	0	0	63
1998	20	19	10	9	132	61	0	8	0	201
1999	16	15	12	3	150	130	0	0	38	318
2000	28	21	17	4	189	249	0	0	14	452
<b>Average</b>	25	22	13	10	113	93	0	2	10	218
<b>Late Season: August</b>										
1996	4	3	1	2	0	1	0	0	0	1
1997	1	1	0	1	0	0	0	0	0	0
1998	3	2	1	1	0	0	0	0	0	0
1999	0									
2000	0									
<b>Average</b>	2	2	1	1	0	0	0	0	0	0

<sup>a</sup> Season dates in 1996 and 1997 were from April 1 – May 20; subsequent years were from April 1 – May 30.

, and/or CRRC salmon stocking projects and releases of  
 erling, and smolt, in millions of fish, Lower Cook Inlet,

LE SOCKEYE SALMON								
ikes ivak	Kirschner Lake	Bruin Lake	Ursus Lake	Port Dick Lake	English Bay Lakes	Bear Lake	Grouse Lake	TOTAL SOCKEYE
								2.100
								2.018
								4.009
	0.867			0.705				4.594
521	0.521			0.222				8.399
500	0.250			0.430		2.200		11.380
500	0.250	0.500			0.350	2.400		11.750
	0.250	0.250			0.241	1.619		8.610
	0.250	0.250	0.250		0.290	2.370		9.910
	0.250	0.250	0.250		0.581	1.813		8.294
	0.300	0	0		0.800	0.170		1.270
	0.251	0.251	0.252		0	0.360		5.524
	0.250	0.250	0.250		0.155	0.864	0.217	5.957
	0.250				0.199	0.788	2.425	6.662
	0.250				0	0.265	2.021	5.843
	0.173				1.149 <sup>a</sup>	1.380	0	3.420
	0.248				1.006 <sup>b</sup>	1.794	0	6.004
507	0.310	0.250	0.200	0.452	0.434	1.325	0.584	6.176

918,000 fry released in Nov. 1999 and 231,000 fry held over winter  
 f 906,000 fry released in summer 2000 and an estimated 100,000 fry  
 ng 2001.

- continued -



Appendix Table 31. (page 2 of 3)

YEAR	J U V E N I L E  P I N K  S A L M O N	Tutka Bay Hatchery	Halibut Cove Lagoon	Homer Spit	Port Graham Hatchery	TOTAL PINKS	J U V E N I L E  C H I N O O K  S A L M O N	Seldovia Bay	Halibut Cove Lagoon	Homer Early	Spit Late	Resurrection Bay <sup>c</sup>	TOTAL CHINOOK
1984		19.560				19.560				0.080		0.111	0.191
1985		23.500				23.500			0.098	0.152		0.186	0.436
1986		23.100	2.000			25.100			0.101	0.104		0.101	0.306
1987		20.500	3.000	0.295		23.795		0.084	0.094	0.104		0.096	0.378
1988		12.000	3.000	0.300		15.300		0.084	0.094	0.104		0.205	0.487
1989		30.100	6.000	0.332		36.432		0.108	0.115	0.104		0.307	0.634
1990		23.600	6.000	0.303		29.903		0.099	0.112	0.212		0.329	0.752
1991		23.600	6.000	0.303	0.255	30.158		0.091	0.092	0.191		0.466	0.840
1992		23.600	6.000	0.300	1.800	31.700		0.113	0.117	0.226	0.126	0.370	0.952
1993		43.000	6.000		0	49.000		0.107	0.100	0.212	0.100	0.290	0.809
1994		61.000			1.295	62.295		0.106	0.107	0.192	0.157	0.270	0.832
1995		63.000			0.358	63.358		0.113	0.036	0.228	0.124	0.315	0.816
1996		105.000			6.470	111.470		0.109	0.103	0.101	0.121	0.415	0.849
1997		89.000			0.910	89.910		0.092	0.078	0.216	0.105	0.321	0.812
1998		90.000			0	90.000		0.079	0.073	0.137	0.120	0.307	0.716
1999		60.132			4.617	64.749		0.074	0.079	0.163	0.059	0.174	0.549
2000		65.120			1.144	66.264		0.068	0.083	0.220		0.322	0.693
AVG.		45.636	4.750	0.306	1.685	52.376		0.095	0.093	0.162	0.114	0.270	0.463

<sup>c</sup> Chinook releases in Resurrection Bay are a cumulative total for all locations.

- continued -

Seldovia Lake	Homer Spit	Resurrection Bay <sup>d</sup>	TOTAL COHO
		0.341	0.341
0.083		0.407	0.629
0.072		0.622	0.832
0.045		0.604	0.799
0.045	0.060	0.530	0.785
0.080	0.143	0.339	0.744
0.050	0.123	1.126	1.479
0.050	0.100	0.599	0.929
	0.100	0.265	0.515
	0.116	0.844	1.110
	0.156	0.560	0.780
	0.110	0.701	0.811
	0.150	0.676	0.826
	0.120	0.808	0.928
	0.148	0.726	0.874
	0.137	1.603	1.740
	0.122	0.618	0.740
0.061	0.122	0.669	0.874

Resurrection Bay are a cumulative total for

Appendix Table 32. Catch of Pacific herring in short tons and effort in number of permits by district in the commercial sac roe seine fishery, Lower Cook Inlet, 1980 - 2000<sup>a</sup>.

Year	<u>Southern</u>		<u>Kamishak</u>		<u>Eastern</u>		<u>Outer</u>		<u>Total</u>	
	Tons	Permits	Tons	Permits	Tons	Permits	Tons	Permits	Tons	Permits
1980	---		---		---		---		---	
1981	---		---		---		---		---	
1982	---		---		---		---		---	
1983	---		---		---		---		---	
1984	---		---		---		---		---	
1985	---		1,132	23	204	7	12	2	1,348	29
1986	---		1,959	54	167	4	28	3	2,154	57
1987	---		6,132	63	584	4	202	9	6,918	69
1988	---		5,548	75	0	0	0	0	5,548	75
1989	170	6	4,801	75	0	0	0	0	4,971	75
1990	---		2,264	75	---		---		2,264	75
1991	---		1,992	58	0	0	0	0	1,992	58
1992	---		2,282	56	0	0	0	0	2,282	56
1993	---		3,570	60	---		---		3,570	60
1994	---		2,167	61	---		---		2,167	61
1995	---		3,378	60	---		---		3,378	60
1996	---		2,984	62	---		---		2,984	62
1997	---		1,746 <sup>b</sup>	45 <sup>b</sup>	---		---		1,746	45
1998	---		331 <sup>b</sup>	20 <sup>b</sup>	---		---		331	20
1999	---		100 <sup>c</sup>	1 <sup>c</sup>	---		---		100	1
2000	---		---		---		---		---	
<hr/>										
20-Year										
Average	92	5	2,713	55	136	2	35	2	2,805	56
1980-89										
Average	13	3	3,037	50	239	4	61	4	3,279	53
1990-99										
Average	170	6	2,552	57	---	---	---	---	2,569	57

<sup>a</sup> Data source: ADF&G fish ticket database.

<sup>b</sup> Includes both commercial harvest and ADF&G test fish harvest.

<sup>c</sup> Commercial fishery closed. ADF&G test fish harvest only.

mates of biomass and projected commercial sac roe seine actual harvests, for Pacific herring (*Clupea pallasii*) in average roe recovery, numbers of permits making landings, value in millions of dollars, Kamishak Bay District, Lower 80 - 2000.

Year	Actual Commercial Harvest (st) <sup>a</sup>	Average Roe %	No. of Permits w/Landings	Exvessel Value <sup>b</sup> (\$\$ millions)
80	CLOSED	---	---	---
81	CLOSED	---	---	---
82	CLOSED	---	---	---
83	CLOSED	---	---	---
84	CLOSED	---	---	---
85	1,132	11.3	23	1.00
86	1,959	10.4	54	2.20
87	6,132	11.3	63	8.40
88	5,548	11.1	74	9.30
89	4,801	9.5	74	3.50 <sup>c</sup>
90	2,264	10.8	75	1.80
91	1,992	11.3	58	1.30
92	2,282	9.7	56	1.40
93	3,570	10.2	60	2.20
94	2,167	10.6	61	1.50
95	3,378	9.8	60	4.00
96	2,984	10.1	62	6.00 <sup>f</sup>
97	1,746	9.3	45	0.40
98	331	8.5	20	0.07
99	CLOSED	---	---	---
00	CLOSED	---	---	---
01	2,878	10.3	56	3.08

<sup>a</sup> Side Shelikof Strait food/bait allocation.  
<sup>b</sup> Active adjustments (except where noted).  
<sup>c</sup> were not generated.  
<sup>d</sup> were not generated.

of 6,000 to 13,000 st.

Appendix Table 34. Summary of herring sac roe seine fishery openings and commercial harvests in the Kamishak Bay District of Lower Cook Inlet, 1969 - 2000.

Year	Dates of Openings	Total Hrs. Open	Harvest (short tons)	Catch Rate (short tons/ hour open)	Number of Permits w/Landings
1969-73	No closed periods				
1974	1/1 - 5/20		2,114		26
1975	1/1 - 6/6	(Closed Iniskin Bay 5/17)	4,119		40
1976	1/1 - 5/21	(Closed Iniskin Bay 5/17; reopened Kamishak 6/2)	4,824		66
1977	1/1 - 5/31	(Closed Kamishak Dist. 5/12; reopened 5/14 - 5/17; reopened 5/29 - 5/31)	2,908		57
1978 <sup>a</sup>	4/16 - 5/31	96	402	4.2	44
1979	5/12 - 5/15	72	415	5.8	36
1980 through 1984	CLOSED	0	0		
1985	4/20 - 6/15	1,350 (56.2 days)	1,132	0.8	23
1986	4/20 - 6/13	1,303 (54.3 days)	1,959	1.5	54
1987	4/21 - 4/23	65	6,132	94.3	63
1988	4/22 - 4/29	42	5,548	132.1	74
1989	4/17 - 4/30	24.5	4,801	196.0	74
1990	4/22 - 4/23	8	2,264	283.0	75
1991	4/26	1	1,922	1,922.0	58
1992	4/24	0.5	2,282	4,564.0	56
1993	4/21	0.75	3,570	4,760.0	60
1994	4/25	0.5	778	1,556.0	35
	4/29	1.0	1,338	1,338.0	53
1995	4/27	0.5	1,685	3,370.0	45
	4/28	1.0	1,693	1,693.0	44
1996	4/24	0.5	2,984	5,968.0	62
1997	4/25 <sup>b</sup>	0.5	0	0	0
	4/29	1.5	1,580	1,053.3	42
	4/30	8.0	61	7.6	<sup>c</sup>
	5/1	12.0	51	4.3	4
	5/22 <sup>d</sup>	<sup>d</sup>	54	<sup>d</sup>	-
1998	4/21	0.5	160	320.0	12
	4/22	2.0	136	68.0	11
	5/14 <sup>d</sup>	<sup>d</sup>	10	<sup>d</sup>	-
	5/22 <sup>d</sup>	<sup>d</sup>	23	<sup>d</sup>	-
1999	CLOSED	CLOSED	100 <sup>d</sup>	<sup>d</sup>	-

- continued -

Total Hrs. Open	Harvest (short tons)	Catch Rate (short tons/ hour open)	Number of Permits w/Landings
CLOSED	0		

fleet collectively agreed not to fish due to ongoing price negotiations

**POTENTIAL NATURE OF CERTAIN REPORTS AND RECORDS,**  
 and four vessels fished in a given area.

Appendix Table 35. Estimates of Pacific herring (*Clupea pallasii*) total biomass in short tons using two different methods, actual commercial sac roe seine harvest in short tons, and percent exploitation, Kamishak Bay District, Lower Cook Inlet, 1980 - 2000.

Year	Aerial Survey Total Biomass Estimate (st) <sup>a</sup>	ASA Model Total Biomass Estimate (st) <sup>b,c</sup>	Actual Commercial Harvest (st)	Estimated Exploitation Rate (%) <sup>b</sup>
1980	<sup>d</sup>	14,176	CLOSED	----
1981	5,130	19,444	CLOSED	----
1982	4,835	29,882	CLOSED	----
1983	4,750	34,228	CLOSED	----
1984	6,500	35,088	CLOSED	----
1985	13,320	37,695	1,132	3.0
1986	26,001	35,482	1,959	5.5
1987	35,332	33,224	6,132	18.5
1988	29,548	27,747	5,548	20.0
1989	35,701	24,587	4,801	19.5
1990	19,664	19,733	2,264	11.5
1991	18,163 <sup>e</sup>	18,160	1,992	11.0
1992	24,077	17,905	2,282	12.7
1993	32,439	18,574	3,570	19.2
1994	25,344 <sup>e</sup>	16,263	2,167	13.3
1995	25,115	13,120	3,378	25.7
1996	21,121	9,109	2,984	32.8
1997	-----	6,437	1,746	27.1
1998	-----	6,105	331	5.4
1999	-----	6,401	CLOSED	----
2000	-----	8,117	CLOSED	----
1980-99 Average	20,214	21,168	2,713	14.1

<sup>a</sup> Diverse methods have been used to generate historical aerial survey biomass estimates; after 1989, see LCI herring forecast report or statewide herring forecast document to determine specific method for individual year.

<sup>b</sup> Figures are based on the best available data at the time of publishing and are subject to change; therefore all figures herein supercede those previously reported.

<sup>c</sup> ASA model integrates heterogeneous data sources and simultaneously minimizes differences between observed and expected return data to forecast the following year's biomass as well as hindcast previous years' biomass.

<sup>d</sup> No data available.

<sup>e</sup> Due to poor aerial survey conditions, biomass was calculated from the preseason estimate of abundance, adjusted to match observed age composition samples in the commercial catch.

*f Fish and Game administers all programs and ination based on race, color, national origin, age, tus, pregnancy, parenthood, or disability. The programs and activities in compliance with Title VI 964, Section 504 of the Rehabilitation Act of 1973, ith Disabilities Act of 1990, the Age Discrimination the Education Amendments of 1972.*

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*native formiats for this and other department t the department ADA Coordinator at (voice) 907-3646, or (FAX) 907-465-2440.*